

# **GS205**

# **Service Manual**



**LG Electronics**

# Table Of Contents

<b>1. INTRODUCTION.....</b>	<b>3</b>	<b>5. DOWNLOAD.....</b>	<b>95</b>
1.1 Purpose.....	3	5.1 Download setup.....	95
1.2 Regulatory Information.....	3	5.2 Download Process.....	96
<b>2. PERFORMANCE.....</b>	<b>5</b>	<b>6. BLOCK DIAGRAM.....</b>	<b>104</b>
2.1 H/W Features.....	5	<b>7. CIRCUIT DIAGRAM.....</b>	<b>105</b>
2.2 S/W Features.....	6	<b>8. BGA IN PIN Check.....</b>	<b>121</b>
<b>3. TECHNICAL BRIEF.....</b>	<b>25</b>	<b>9. PCB LAYOUT.....</b>	<b>125</b>
3.1 Digital Main Processor(MT6226).....	25	<b>10. ENGINEERING MODE.....</b>	<b>127</b>
3.2 Power Amplifier Module(SKY77318).....	33	<b>11. CALIBRATION.....</b>	<b>141</b>
3.3 Transceiver Module(MT6139).....	34	11.1 Test Equipment Setup.....	141
3.4 Bluetooth Module (MT6601).....	36	11.2 Calibration Steps.....	142
3.5 PMIC (MT6318).....	39	<b>12. STAND ALONE TEST.....</b>	<b>181</b>
3.6 Memory Module (K5L5563CAA_D770).....	41	12.1 Test Configuration.....	181
3.7 FM Radio Module (Si4708).....	44	12.2 META tool Install process.....	182
3.8 Antenna Switch Module (ESHS-B085TB).....	46	12.3 Rx Test.....	185
3.9 LCD Interface.....	47	12.4 Tx Test.....	190
3.10 SIM& Micro SD Card Interface.....	50	<b>13. #EV#.....</b>	<b>192</b>
3.11 KEYPAD Interface.....	51		
3.12 Battery Charging Block Interface.....	52		
3.13 Audio Interface.....	53		
3.14 Vibrator Interface.....	55		
3.15 Camera Interface.....	56		
<b>4. TROUBLE SHOOTING.....</b>	<b>58</b>		
4.1 Power On Trouble.....	58		
4.2 SIM Card Trouble.....	62		
4.3 Vibrator Trouble.....	64		
4.4 Keypad Trouble.....	66		
4.5 RTC Trouble.....	68		
4.6 LCM Backlight Trouble.....	70		
4.7 LCM Trouble.....	71		
4.8 Microphone Trouble.....	73		
4.9 Receiver Trouble.....	75		
4.10 Speaker Trouble.....	77		
4.11 Headphone Trouble.....	79		
4.12 RF Trouble.....	83		

# **1. INTRODUCTION**

## **1.1 Purpose**

This manual provides information necessary to repair, description and download the features of this model.

## **1.2 Regulatory Information**

### **A. Security**

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services.

System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunications service of facilities accessed through or connected to it.

The manufacturer will not be responsible for any charges that result from such unauthorized use.

### **B. Incidence of Harm**

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

### **C. Changes in Service**

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the this phone or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

### **D. Maintenance Limitations**

Maintenance limitations on this model must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs except as specifically noted in this manual.

Therefore, note that authorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

### **E. Notice of Radiated Emissions**

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

### **F. Pictures**

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

## **G. Interference and Attenuation**

Phone may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

## **H. Electrostatic Sensitive Devices**

### **ATTENTION**

**Boards, which contain Electrostatic Sensitive Devices(ESD),are indicated  by the sign .**

**Following information is ESD handing:**

- . Service personnel should ground themselves by using a wrist strap when exchange system boards.
- . When repairs are made to a system board , they should spread the floor with anti-static mat which is also grounded .
- . Use a suitable, grounded soldering iron .
- . Keep sensitive parts in these protective packages until these are used.
- . When returning system boards or parts like EEPROM to the factory, use the protective packages as described.



## 2. PERFORMANCE

### 2.1 H/W Features



















Solution	MT6226M (+1.3M)	Media Tek
Type	Bar type	
Antenna Type	Internal	GSM, BT, FM antenna
Main Display	2.0" 128x160 QQVGA	
GPRS	Class 10	
MMS	Yes, 1.1	
Camera	<1.3M→(S5K6AAFX13, 1/6")> Fixed Focus	< 1/6">
Battery	950mAhLi-ion inner pack	LG Chemical / TOCAD (LGIP-531A)
Audio player	Yes (support MP3, and AAC playback)	
FM Receiver	Yes, US/Europe band (87.5~108MHz)	
MPEG4/H.263	Yes (support 3GP)	
FM as alarm	Yes	
Scheduled FM recording	Yes	
MP4 for incoming call/ power on off animation	Yes	
Loud Speaker	Yes	
Audio player—real resuming	Yes, for MP3 only	
Video recording	Yes	
Memory Size	256Mb NOR Flash + 64Mb PSRAM	User memory over 4MB
Memory Card	Micro SD	Up to 8GB
Bluetooth	Yes, version 2.0	W/O EDR
USB	Yes, slave 2.0 FS	
WAP	Yes, 2.0	
Java	Yes	
MPEG4 caller ID	Yes	
OTA	Yes	
Music Equalizer	Yes	
In flight mode	Yes	

## 2.2 S/W Features

### 2-2-1 System Specification

Item	Target Specification
Form Factor	Bar Type
Size	110*48.6*14mm
Weight	(TBD)
Battery	3.7V, 950mAh
Talk Time	↑5.5hrs@ 950mAh (GSM900 PCL10) ↑7.5hrs @ 950mAh (DCS1800 PCL10)
Standby Time	↑330 hrs @ 950mAh (GSM900 P.P.: 2) ↑470 hrs @ 950mAh (GSM900 P.P.: 5) ↑560 hrs @ 950mAh (GSM900 P.P.: 9)
Antenna	Embedded type (GSM, BT, FM antenna)
LCD	262K color, 128x160 TFT
FM Radio	Yes, EU/US band only
Camera	<1.3M> Fixed Focus
Back Light	White LED
Keypad Backlight Color	White LED
Vibrator	Yes
Loud Speaker	Yes
Microphone	Yes
Earphone Jack	No
SIM Socket	Yes, 1.8/3.0V
Volume Key	Side key
Basic Accessory	Travel Adaptor
	Battery (950mAh, Li-Ion)
	Stereo Headset w/ button
	Micro USB Data Cable

## 2-2-2 General Features

Function	Target Specification																									
Basic Display	RSSI (7 Level, 'no service, 0, 1, 2, 4, 5, 7')																									
	Battery Indicator (4 Level, 0~3)																									
	<table><tr><td>Battery Indicator</td><td>Battery Indicator</td><td>Voltage</td></tr><tr><td></td><td>3 -&gt; 2</td><td>3.72 ± 0.03V</td></tr><tr><td></td><td>2 -&gt; 1</td><td>3.62 ± 0.03 V</td></tr><tr><td></td><td>1 -&gt; 0</td><td>3.54 ± 0.03 V</td></tr></table>	Battery Indicator	Battery Indicator	Voltage		3 -> 2	3.72 ± 0.03V		2 -> 1	3.62 ± 0.03 V		1 -> 0	3.54 ± 0.03 V													
	Battery Indicator	Battery Indicator	Voltage																							
		3 -> 2	3.72 ± 0.03V																							
	2 -> 1	3.62 ± 0.03 V																								
	1 -> 0	3.54 ± 0.03 V																								
Antenna display (7 level settings and the corresponding RSSI)																										
<table><tr><th>Model</th><th>Antenna Bar</th><th>Display</th><th>Range (dBm )</th><th>Rem arks</th></tr><tr><td rowspan="7">CDMA GSM 3G</td><td rowspan="7">7 ea</td><td></td><td>-92 or higher</td><td rowspan="7">If there's a specific requirement by Operator, must follow it.</td></tr><tr><td></td><td>-93 ~ -97</td></tr><tr><td></td><td>-98 ~ -100</td></tr><tr><td></td><td>-101 ~ -103</td></tr><tr><td></td><td>-104 ~ -105</td></tr><tr><td></td><td>-106 or lower</td></tr><tr><td>OFF</td><td>No service</td></tr></table>					Model	Antenna Bar	Display	Range (dBm )	Rem arks	CDMA GSM 3G	7 ea		-92 or higher	If there's a specific requirement by Operator, must follow it.		-93 ~ -97		-98 ~ -100		-101 ~ -103		-104 ~ -105		-106 or lower	OFF	No service
Model	Antenna Bar	Display	Range (dBm )	Rem arks																						
CDMA GSM 3G	7 ea		-92 or higher	If there's a specific requirement by Operator, must follow it.																						
			-93 ~ -97																							
			-98 ~ -100																							
			-101 ~ -103																							
			-104 ~ -105																							
			-106 or lower																							
		OFF	No service																							
Icons Indicator																										
Others reference to "Phone Personalization Setting"																										
Speech Codec	FR/EFR/HR/AMR																									
Keypad	Number of Keys: 24 Key (include 12 alphanumeric/number keys (0-9,#,*), 4 function keys, 5 way navigation keys, 2 side keys,1 camera key)																									
	Soft Function Keys : 2																									
	International Access (+)(long 0)																									
User Profile (Audio Settings)	User Selectable and Customizable Profiles ( 4 profiles: Normal, Outdoor, Silent, Flight mode)																									
	Key Tone																									
	Key Tone Volume (6 Level - 0 ~ 5, 0 for Mute)																									
	Key tone setting(DTMF, English)																									
	Ring Tone																									
	Ring Tone Volume (6 Level - 0 ~ 5, 0 for Mute)																									
	Built-in Ring Tone Pattern: 20																									
	Customizable Ring Tone Link: 5																									
	Alert Type																									
	5 Types - Ring, Vibration, Ring and Vibration, Ring after vibration, Silent																									
	Power on/off tones																									
	Built-in Ring Tone Pattern: 4																									

	<b>Message Tone</b>
	Built-in Ring Tone Pattern: 7
	<b>Warning Tone</b>
	Built-in Ring Tone Pattern: 1
	<b>Error Tone</b>
	Built-in Ring Tone Pattern: 1
	<b>Camp On Tone</b>
	Built-in Ring Tone Pattern: 1
	<b>Connect Tone</b>
	Built-in Ring Tone Pattern: 1
	<b>Answer Mode</b>
	Any Key Answer, Send Key only
Personal Information Management	Calendar - Month view only
	To do list —4 fields (Due Date, Note, Priority, Status,)
Tools and Utilities	<b>Alarm</b>
	5 sets of Alarm
	6 major fields for each set - On/Off, Time, Repeat type, Audio options, Snooze(Mins), Alert type
	<b>World Clock</b>
	Cities list: China(52),IND(54),CIS(68) cities
	Daylight saving time support: activated by user selection
	Home city set
	<b>Calculator</b>
	Addition, Subtraction, Multiplication, Division
	<b>Unit Converter</b>
	Weight, Length
	Memo
	To do
	BMI, Menstrual
Phone Personalization Setting	Greeting Text
	Shortcuts
	Flight Mode
	Time and Date Setting

	Wallpaper
	LCD Backlight
	PLMN/Service Indicator (Display of PLMN Name/Service Provider Name from SIM)
	Date Time Display
	Restore Factory Default Setting
Security	Phone Lock SIM/Key Lock
Input Method	<b>Engine</b>
	T9
	<b>Support Language</b>
	Depends on customer and market requirement. Total supported languages will be limited to memory condition.
	<b>Predictive word input</b>
Game	3 Java Games, provided by LGE. (ChequeredFlag, ZooZooClub, BattleReversi)
	Settings: BGM, Sound Effect, Vibration
Anti-theft Mobile Tracker (ATMT)	Provide this feature by following LG spec. (GSM_VVLT 0 5_LMT_20071117_1.ppt)

### 2-2-3 GSM/GPRS Features

Function	Target Specification
GPRS	GPRS Multi slot Class 10
Data Service	BS 24 - 26 (2400-9600 bit/s), asynchronous, non-transparent, UDI. CSD rate up to 9.6K bit/s
Call History	Last Dialed Number: 40
	Last Received Number: 40
	Last Missed Number: 40
	Scratch Pad Memory (Save an input number in call): 1
Call Duration	Last Call Time
	Total Dialed Call Time
	Total Received Call Time
	All Call Time
Call Cost	Last Call Cost
	Total Cost
	Cost Setting
GPRS Counter	Last Sent (unit in Byte)
	Last Received (unit in Byte)
	All Sent (unit in Byte)
	All Received (unit in Byte)
	Reset Counter
Call Management	Call Swap
	Call Retrieve
	Automatic Redial
	Speed Dialing
	Last Number Redial
	Support 40-digits Dialing Number from Idle, Phonebook in handset, and Call Log
	<b>(This feature will not be realized in LG33 project.)</b>
	1. Idle dial screen: OK
	2. Phonebook (Phone): OK
	3. Phonebook (SIM): Have limitation, depend on SIM card.
Call Related Supplementary Services	4. Call Log: OK
	5. SMS: support 20-digit
	6. MMS: support 50-digit
	Call Hold
	Call Waiting
	Calling Line Identity Presentation
	Calling Line Identity Restriction
	Connected Identification Restriction
	Call Divert All voice Calls
	Call Divert if unreachable
	Call Divert if no answer
	Call Divert if busy
	Call Divert all data calls

	Cancel all divert
	Call Barring All Outgoing Calls
	Call Barring All Outgoing International Calls
	Call Barring All outgoing International except home
	Call Barring All incoming Calls
	Call Barring All incoming Calls when roaming
	Multi-party Call (up to 7 calls, 5 in conference, 1 on held, 1 waiting)
	Line switching (Line1, Line2)
	Call reminder (Off, Single, Periodic)
Phone Book	Quick Search (Notice: Quick search function only works in Phonebook, SMS and MMS. In other application, this phone supports regular search.)
	Alpha Store and Recall
	Access Phone Book in call
	Copy & Move
	Fixed Dial Number
	Service Dial Number
	Speed Dial Number
	SOS Number (if no SIM card insert, SOS number will displayed on Idle screen)
	Entry: 1000 names(11 fields – Name, Mobile, Home, Email address, Office number, Fax number, Associate Picture, Associate Video, Associate Sound, Caller group, Memo) ---- calculate the memory usage (60KB)
	Caller Group- 7 caller group- Friends, Family, Colleague, VIP, Group1, Group2, No group, (Options – View member, Group ring tone, Group icon, Add member, Remove member, Rename, Reset all)
	Own Numbers: User can change the own numbers of handset. (Sets of own numbers depends on SIM)
	vCard: (Edit, Send and Receive. 6 fields – Name, Mobile, Home, Email Address, Office Number, Fax Number)
	Note: This phone doesn't support phone number search. .(Phone number search support on dialing mode)
Message	<b>SMS</b>
	Standard SMS
	SMS Reply Path
	SMS Delivery Report
	Valid period (1 hour/6 hours/12 hours/1 day/3 days/1 week/Maximum)
	Message Type (Text, Fax, Page, Email) Message Indication Type refer to GSM 03.40
	Basic text-only SMS as described in 3GPP TS 23.040 R5
	Notice: This phone doesn't support video ring tone via SMS
	<b>SMS Character Sets Support</b>
	GSM7
	UCS-2

	<b>EMS</b>
	EMS Standard as described in 3GPP TS 23.040 R5 excluding WVG
	<b>EMS Text Format</b>
	Text Style: Normal, Bold, Italic, Underlined, Strikethrough
	Text Alignment: Left, Right, Center
	Text Size: Normal, Large, Small
	<b>EMS Image Support</b>
	1-bit small image 16x16 pixels black and white
	1-bit large image 32x32 pixels black and white
	1-bit variable image in single SMS packet
	Extended black and white 1-bit image up to 255x255 pixels
	Extended 6-bit image up to 255x255
	Pre-defined animation
	User-defined small animation 8x8 pixel 4-frame black and white
	User-defined large animation 16x16 pixel 4-frame black and white
	Pre-defined sound
	User-defined i-Melody up to 128 bytes
	LZSS compression algorithm
	Re-use extended object
	Object Distribution
	User Prompt Indicator
	Hyperlink format element
	Extended Object Distribution
	Notice: This mobile doesn't support Nokia smart message format (including WBMP), only support *.ems format" → subject to Nokia smart message license
	<b>EMS Character Sets Support</b>
	GSM7
	UCS-2
	<b>EMS Miscellaneous</b>
	SMS Concatenation ( 8 Segments for MT/MO)
	SMS Compression
	<b>MMS</b>
	MMS Standard as described in 3GPP TS 23.140 V4.8.0
	Extract media from Message
	Insert Media into message
	OTA provisioning partially support (Network Profile setting
	Auto download mode
	Manual download mode
	Operator can pre-configure the delivery mode
	MMS notification with icon or Pop-up message display)
	<b>MMS Message Format</b>



	MMS SMIL (A subset of SMIL described in the MMS Conformance Document 1.2)
	- maximal size for each MMS is limited by 300KB
	<b>MMS Character Sets Support</b>
	US-ASCII
	Unicode
	ISO-8859-1
	UTF-16
	UTF-8
	<b>MMS Images Support</b>
	WBMP Wireless bitmap
	GIF87
	GIF89a
	JPEG
	<b>MMS Sound Formats Support</b>
	WAV
	AMR
	MIDI
	MP3
	i-Melody
	<b>MMS Miscellaneous</b>
	Multipart binary MIME
	<b>Storage</b>
	Separated Inbox folder for SMS and MMS
	Separated Outbox folder for SMS and MMS
	Total 300 SMS in the storage of phone plus SIM including Inbox and Outbox ( Phone could supports 260sets SMS including Inbox and Outbox. The maximum SMS stored in SIM are 40sets. It means the actual SMS quantities in Inbox and Outbox are among 260 to 300. ) <sup>[p1]</sup>
	Total 100 MMS in the phone storage including Inbox, draft and Outbox
	Notice: Total MMS count need depends on user memory space.
	<b>Common Operation</b>
	Write Message
	Read Message
	Edit Message (For MMS, Edit only conformance messages, unknown media not supported, unknown SMIL not supported)
	Reply Message
	Send Message
	Delete Message
	Forward Message
	Use Sender's Number
	Message Templates

	Extract media from Message (MMS/EMS)
	Store Media (MMS/EMS)
	Delete Media (MMS/EMS)
Cell Broadcast	Read Cell Broadcast
	Cell Broadcast Mode: Receive On/Off
	Cell Broadcast Message Language
	Channel Setting
Network	Automatic Network Selection
	Manual Network Selection
	Preferred Network (User definition)
	GPRS connection mode selection: Always, When Needed
SIM	<b>Common Operation</b>
	SIM Application Toolkit (Release 98 Class 2 certified)
	Prepaid SIM operation
	<b>Security</b>
	PIN
DTMF	DTMF Signaling
	DTMF Enable & Disable

## 2-2-4 Multimedia Features

Function	Target Specification
Camera	Image size: 128X160, 160X128, 320X240, 640X480, 1280x1024
	Zoom: 1x ~ 4x
	Quality: Normal, Fine, Super fine
	White Balance: Auto WB, Daylight, Tungsten, Fluorescent, Cloud, Incand.
	Shutter tone: Three Shot Sounds
	EV: -4 ~ +4
	Scene Mode: Auto, Night
	Banding: 60Hz/50Hz
	Color Effect : (Total 14 types) Effect off, Grayscale, Sepia, Sepia Green, Sepia Blue, Color Invert, Gray Invert, Blackboard, Whiteboard, Engraving, Blue Carving, Embossment, Contrast, Sketch
	No. of the Stick Frames: 3 Off, Frame 1, Frame 2, Stick Frame Only can be used while image size is 128WX160H
	Storage Selection: Phone, Memory card (Only available when external memory card supported)
	Self timer: Off/ 3/ 5/ 10Sec
Image Viewer	Thumbnail supported
	Browse Style: List, Matrix
	View
	Forward: To Wallpaper, Phonebook, Picture ID, MMS, Bluetooth
	Rename
	Delete
	Delete All
	Sort: By Name, Type, Time,
	Storage Selection: Get list from Phone, Memory card (Only available when external memory card supported)
	<b>Image Format Support</b>
	JPEG Baseline

	GIF87a
	GIF89a
	WBMP
	BMP
Music Player	Play
	Pause
	Resume
	Stop
	Next
	Previous
	Fast forward
	Rewind
	Storage Selection: Get list from Phone, Memory card (Only available when external memory card supported)
	Auto-Generate Playlist
	Skin: 2 skins
	Repeat Mode: Off, One Song, All Songs
	Shuffle Play
	Background Play
	Equalizer Setting: 8 sets Normal, Bass, Dance, Classical, Treble, Party, Pop, Rock
	Volume Control: 21 level (0~20, 0 for Mute)
	Playlist Edit: Add, Remove, Remove All
	<b>Sound Format Support</b>
	MP3
	AMR
	MIDI
	WAV
	AAC
Video Player	Play
	Pause
	Stop
	Fast forward
	Rewind
	Speed Control: X1, X2, X4, X8, X1/2
	Send via: Multimedia message, Bluetooth

	Rename
	Delete
	Delete All
	Sort: By Name, Type, Data
	Storage Selection: Get list from Phone, Memory card
	Volume Control: 21 level (0~20, 0 for Mute)
Video Recorder	White Balance: Auto, Daylight, Tungsten, Fluorescent, Cloud, Incandescence
	EV: -4 ~+4
	Scene mode: Auto/Night
	Banding: 60Hz/50Hz
	Quality: Normal, Fine, Super fine
	Record Audio: On/Off
	Encode Format: MP4/ 3GP
	Effect settings: (Total 14 types) Effect off, Grayscale, Sepia, Sepia Green, Sepia Blue, Color Invert, Gray Invert, Blackboard, Whiteboard, Engraving, Blue Carving, Embossment, Contrast, Sketch
	Storage Selection: Phone, Memory card (Only available when external memory card supported)
	Record
	Pause
	Resume Recording
	Stop
Sound Recorder	Storage Selection: Phone, Memory card (Only available when external memory card supported)
	Encode Format: WAV, AMR
	Record
	Pause
	Resume Recording
	Stop

Melody Compose	Edit
	Play
	Save
	Instrument Selection: 10 types Piano, Guitar, Violin, Saxophone, Steel Drums, Flute, Harmonica, Trumpet, Music Box, Xylophone
	Play Speed: Fast, Normal, Slow
	[Notice] Melody composer only support one instrument in one melody file, so the last chosen instrument will be used to play this melody file
FM Radio	Frequencies: 87.5 ~ 108.0
	Skin: 2 skins
	User definable Preset Channel List
	Channel Auto Search
	Background Play
	Record
	Record Format: AMR, WAV
	Record Storage: Phone, Memory Card (Only available when external memory card supported)
	Preset Channel List generated by auto search
JAVA	MIDP 2.0
	CLDC 1.1
	Memory Limit <a href="#">2MB</a> Support JSR 139,118,120,135,185

## 2-2-5 WAP

Function	Description	Value		Comments
		Code base 05C	Code base 07A	
General	Type of Browser (Browser Name)	Obigo	Obigo	
	Version of the Browser	Q03C	Q03C	
	The usable size of the device's screen in units of pixels (px*px)	128X160	128x160	
	Size of the device's screen in units of characters. (Number of characters per row)x(Number of rows). In calculating this attribute use the largest character in the device's default font.	Variable font width.	Variable font width.	
	Size of the device's screen in units of characters. (Number of characters per row)x(Number of rows). In calculating this attribute use the smallest character in the device's default font.	Variable font width.	Variable font width.	
	Browser version interrogation capability via keypad	No	No	
	Factory configuration option available	No	No	
Bearer	Bearer Selection available to end user via multiple profiles or via bearer options in each profile (circuit or Packet if both available):	Yes	Yes	multiple profile selection with bearer in CSD or GPRS
	Bearer Dependent Display Indication supported (ie End user must be able to differentiate between WAP over a circuit connection from WAP over a Packet connection due to likely charging implications)	Yes	Yes	For CSD, there's a dialing up progress screen. End-user could sense currently using CSD.
	GPRS	Yes	Yes	
	CSD	Yes	Yes	
	Automatic bearer selection	No	No	
Language	Version of WML supported by the browser	1.3	1.3	
	WMLscript support	Yes	Yes	
	Version of XHTML supported by the browser	1.1	1.1	
	Version of HTML supported by the browser	1.1	1.1	

	Maximum WML Deck Size supported (WML Binaire)	30KB	30KB	But it depends on assigned total memory pool. And by content diversity, the value is dynamic.
TAG/ Browsing	Is the attribute hspace for images ignored by the device?	No	No	
	Is it possible to select/download images with the device?	Yes	Yes	
	Tables supported? Yes/No	Yes	Yes	
	Is it possible to mask table's border? Yes/No	No	No	
	Is there automatically a breakline after a link? Yes/No	No	No	
	Labels for links supported in the Softkey? Yes/No	No	No	
	Possibility to use SelectList for links? Yes/No	No	No	
	Card title supported? Yes/No	Yes	Yes	
	Is the Back function existing by default for the handset? Yes/No	Yes	Yes	
	Tag <noop/> supported? Yes/No	Yes	Yes	
	Multiple choice and single choice for checkbox supported?	Yes	Yes	
	Input fields supported?	Yes	Yes	
	Styles of characters supported? (<u><i><em>...)	Yes	Yes	
	Image and text on the same line supported?	Yes	Yes	
	Image and link on the same line supported?	Yes	Yes	
	Link inside a text paragraph supported?	Yes	Yes	
	Horizontal alignment supported? Yes/No	Yes	Yes	
	WAP CSS supported (WAP2.0)? Yes/No	Yes	Yes	
WTA	WTAI supported?	Yes	Yes	
	WTAI make call function supported?	Yes	Yes	
	WTA Save in phonebook	Yes	Yes	



	WTA Send DTMF	No	No	Currently there's no this scenario on handset.
	WTAI location function supported?	No	No	
Security	WTLS supported?	Yes	Yes	
	TLS supported?	Yes	Yes	
	WAP forum certification	Yes	Yes	
	Clear Display Indication that WTLS Security is successful for a given session	Yes	Yes	
	Clear Indication that user has accessed/exited a secure site	No	No	
	1. WTLS Class 2 with $\geq 128$ bit encryption	Yes	Yes	
	2. WTLS Class 3 with $\geq 128$ bit encryption	Yes	Yes	
	Supported Algorithms	SHA-1, MD5	SHA-1, MD5	
	Support of WIM	No	No	
	Certificates store supported?	Yes	Yes	
	1. Verisign	Yes	Yes	
	2. Baltimore	No	No	
	3. Certicom	No	No	
	4. Diversinet	No	No	
	5. Entrust	Yes	Yes	
	6. Globalsign	No	No	
Profile/ Bookmark	Multiple WAP Profile Capability	Yes	Yes	
	WAP Profiles Editable by - End User	Yes	Yes	
	WAP Profiles Editable by - OTAC (via SMS)	Yes	Yes	
	Maximum Number of WAP Settings	10	10	
	Maximum number of bookmarks in the handset	20	20	Customizable
	Maximum number of characters for an URL managed by the handset for GET and POST method	1024	1024	
OTA/ Push	Support OTA Provisioning for the WAP Client? If yes, Which type of OTA?	Yes, OMA OTA & Nokia&Ericsson OTA	Yes, OMA OTA & Nokia&Ericsson OTA	
	1. View settings	Yes	Yes	after set up.
	2. Accept preconfiguration settings	Yes	Yes	
	3. Reject preconfiguration settings	Yes	Yes	
	WAP Push Alerts	Yes	Yes	
	Push bearer SMS	Yes	Yes	
	Push bearer WAP	Yes	Yes	
	Push SI (Service Indication)	Yes	Yes	
	Push SL (Service Loading)	Yes	Yes	
	Push CO (Cache Operation)	Yes	Yes	
	Push SIA (Session Initiation Application)	Yes	Yes	

	Maximum number WAP Push that can be stored/ Memory dimension reserved to WAP Push	15	15	
	is it possible to read Wap push later on ?	Yes	Yes	
	SyncML parameters OTA provisioning (Y/N)?	No	Yes	
	E-mail parameters OTA provisioning	No	Yes	
	IM client parameters OTA provisioning	No	Yes	
	MMS parameters OTA provisioning (OMA, proprietary, none)? * if OMA : SIM card provisioning support (Y/N)? * If YES : could you describe the way to manage the parameters in the SIM and the parameters in the phone?	OMA, SIM card Provisioning support (N)	OMA, SIM card Provisioning support (N)	
	WAP parameters OTA provisioning support (OMA, proprietary, none)? * if OMA : SIM card provisioning support (Y/N)? * If YES : could you describe the way to manage the parameters in the SIM and the parameters in the phone?	OMA, SIM card Provisioning support (N)	OMA, SIM card Provisioning support (N)	
Stack	SAR supported? Yes/No	Yes	Yes	
	Is WTP Concatenation supported by the mobile? Yes/No	Yes	Yes	
	Can the Connect and the Get be sent in the same PDU? Yes/No	No	No	
	Is the mobile able to send multiple GET in the same PDU in case of complex pages (at least 2 images)?	No	No	
	Is the mobile able to send multiple GET in rafale without waiting for to acknowledge the reply in case of complex pages (at least 2 images)?	No	No	
	WP-HTTP	Yes	Yes	
	WP-TCP	Yes	Yes	
	WP-TLS	Yes	Yes	
	Dual Stack 1.x/2.0	Yes	Yes	
Cache/ Cookie	Cache size (bytes)	50KB	50KB	Customizable
	Default behaviour in case no caching control has been defined for a WML or XHTML page?	Reload Always	Reload Always	
	Default behaviour in case no caching control has been defined for an image?	Reload	Reload	

	Where is the cache stored (RAM, flash memory, ...)?	Flash memory (system drive)	Flash memory (system drive)	
	Cache control using HTTP headers supported?	Yes	Yes	
	Attributes for Cache control supported in HTTP headers (expires, max-age, no-cache, ...)	Expire, max-age, Etag, Last-Modified-Since, no-cache.	Expire, max-age, Etag, Last-Modified-Since, no-cache.	
	Cache control using HTTP-EQUIV meta tags in the WML or XHTML content supported?	Yes	Yes	
	Attributes for Cache control supported for HTTP-EQUIV meta tags (expires, max-age, no-cache, ...)	Expire, max-age, Etag, Last-Modified-Since, no-cache.	Expire, max-age, Etag, Last-Modified-Since, no-cache.	
	Cache Operation Support as defined by WAP Forum in WAP1.2.1 spec or WAP2.0 spec	Yes	Yes	
	Are cookies supported by the handset? Yes/No	Y	Y	
	Lifetime	Y	Y	
	Empty cache function (Y/N)	Y	Y	
Download	Maximum SDU Size as Server (bytes)	104856700	104856700	WSP
	Maximum SDU Size as Client (bytes)	104856700	104856700	WSP
	Maximum number of images per page	Common memory pool	Common memory pool	
	Maximum size for an image (bytes)	Common memory pool	Common memory pool	
	Preferred image format	Gif, JPG, WBMP	Gif, JPG, WBMP	
	Type of Multipart supported in MIME Type format	All object formats that could be used on handset	All object formats that could be used on handset	
	Audio Files	All object formats that could be used on handset	All object formats that could be used on handset	
	JAR download over WSP/HTTP	Yes	Yes	
	Support of TCP network connection	Yes	Yes	

### 2-2-6 Connectivity Features

Function	Target Specification
WAP	WAP 2.0 Spec.
	WAP Push OTA/Message
	WAP Provisioning Service
	CSD/GPRS data connection
	Bookmark
	Wireless Telephony Application (WTA) support: Only Public WTA support, supported functions listing below - <ul style="list-style-type: none"> <li>* Make a telephone call</li> <li>* Send a string of DTMF tones over an established voice connection</li> <li>* Add an entry to the telephone book of the device</li> </ul>
	Support OTA push and push message
	OTA Provisioning & OTA download
	Supports WML, WCSS, XHTML mp
Bluetooth	Version 2.0
	Profile: GAP; SDAP; DUN; SPP; OPP; HSP; HFP; FTP; A2DP; AVRCP, BPP
USB	Mass Storage Device
	Virtual COM

### 3. TECHNICAL BRIEF

#### 3.1 Digital Main Processor

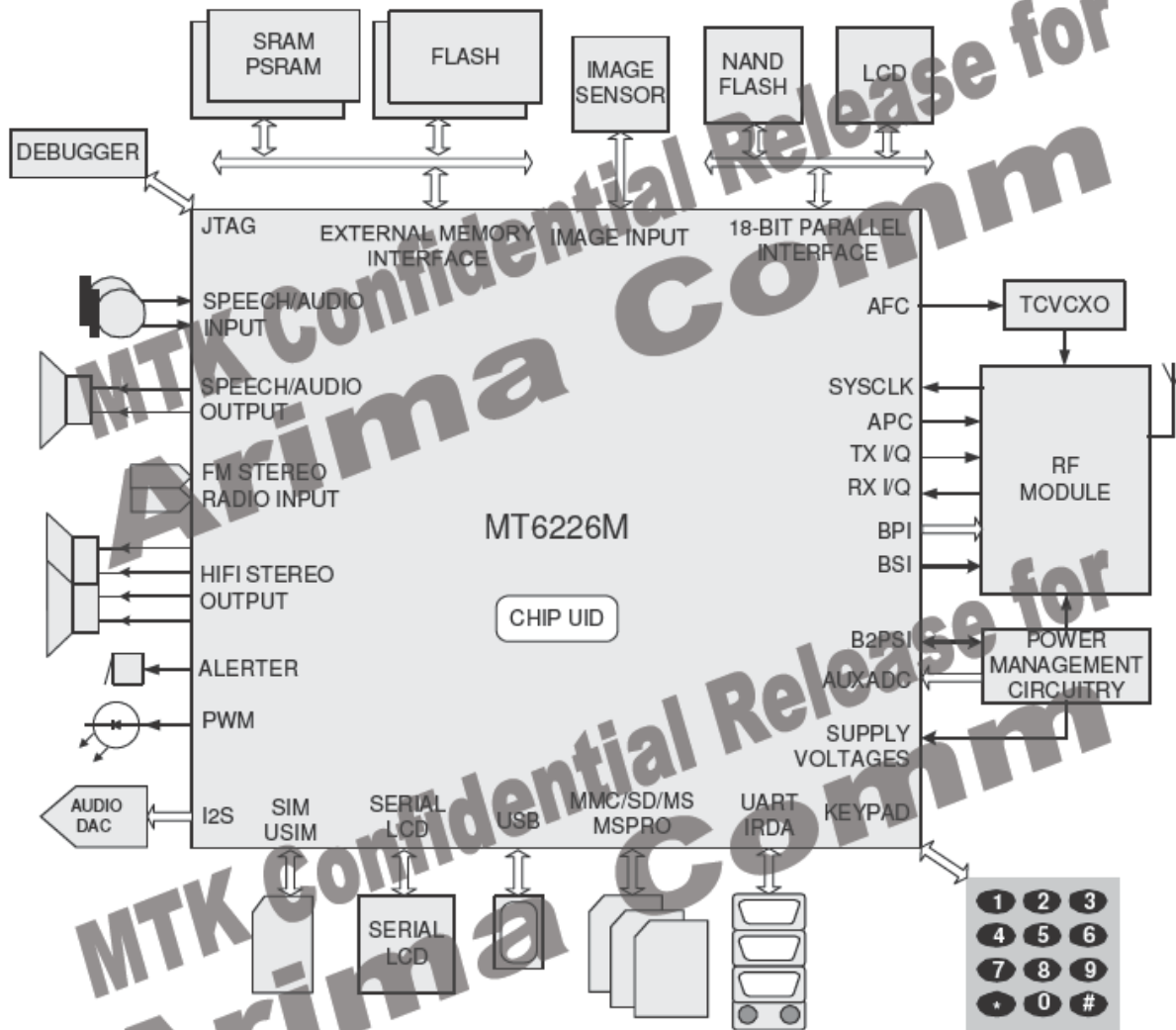


Figure.3-1-1 MT6226M FUNCTIONAL BLOCK DIAGRAM

### **3.1.1 System overview**

The revolutionary MT6226M is a leading edge single-chip solution for GSM/GPRS mobile phones targeting the emerging applications in digital audio and video. Based on 32-bit ARM7EJ-STM RISC processor, MT6226M not only features high performance GPRS Class 12 MODEM, but also provides comprehensive and advanced solutions for handheld multi-media. Typical application is shown in Figure 3-1-1.

#### **Multi-Media Subsystem**

The MT6226M multi-media subsystem provides connection to CMOS/CCD image sensor and supports resolution up to 1.3M Pixel. With its advanced image signal and data processing technology, MT6226M allows efficient processing of image and video data. It also has built-in JPEG CODEC and MPEG-4/H.263 CODEC, thus enabling real-time creation and playback of high-quality images and video. In addition to advanced image and video features, MT6226M also utilizes high resolution DAC, digital audio, and audio synthesis technology to provide superior audio features for all future multi-media needs.

In order to provide more flexibility and bandwidth for multi-media products, an additional 18-bit parallel interface is incorporated. This interface enables connection to LCD modules as well as connection to NAND flash devices to allow for multi-media data storage capabilities.

#### **External Memory Interface**

Providing the greatest capacity for expansion, MT6226M supports up to 8 state-of-the-art devices through its 16-bit host interface. Devices such as burst/page mode Flash, page mode SRAM, Pseudo SRAM, Color/Parallel LCD, and multi-media companion chip are all supported through this interface. To minimize power consumption and ensure low noise, this interface is designed for flexible I/O voltage and allows lowering of supply voltage down to 1.8V. The driving strength is configurable for signal integrity adjustment. The data bus also employs retention technology to prevent the bus from floating during turn over.

#### **User Interface**

To provide complete user interface, MT6226M brings together all the necessary peripheral blocks for multi-media GSM/GPRS phone. The peripheral blocks consists of the Keypad Scanner with the capability to detect multiple key presses, SIM Controller, Alerter, Real Time Clock, PWM, Serial LCD Controller, and General Purpose Programmable I/Os. For connectivity and data storage, the MT6226M supports UART, IrDA, USB 1.1 Slave and MMC/SD/MS/MS Pro. Furthermore, for large amount of data transfer, high performance DMA(Direct Memory Access) and hardware flow control are implemented, which greatly enhances the performance and reduces MCU processing load.

#### **Audio Interface**

Using a highly integrated mixed-signal Audio Front-End, the MT6226M architecture allows for easy audio interfacing with direct connection to the audio transducers. The audio interface integrates D/A and A/D Converters for Voice band, as well as high resolution Stereo D/A Converters for Audio band. In addition, MT6226M also provides Stereo Input and Analog Mux.

MT6226M supports AMR codec to adaptively optimize speech and audio quality. Moreover, HE-AAC codec is implemented to deliver CD-quality audio at low bit rates.

Overall, MT6226M's audio features provide a rich platform for multi-media applications.

#### **Radio Interface**

MT6226M integrates a mixed-signal Baseband front-end in order to provide a well-organized radio interface with flexibility for efficient customization. It contains gain and offset calibration mechanisms, and filters with programmable coefficients for comprehensive compatibility control on RF modules. This approach also allows the usage of a high resolution D/A Converter for

controlling VCXO or crystal, thus reducing the need for expensive TCVCXO. MT6226M achieves great MODEM performance by utilizing 14-bit high resolution A/D Converter in the RF downlink path. Furthermore, to reduce the need for extra external current-driving component, the driving strength of some BPI outputs is designed to be configurable.

### **Debug Function**

The JTAG interface enables in-circuit debugging of software program with the ARM7EJ-S core. With this standardized debugging interface, the MT6226M provides developers with a wide set of options in choosing ARM development kits from different third party vendors.

### **Power Management**

The MT6226M offers various low-power features to help reduce system power consumption. These features include Pause Mode of 32KHz clocking at Standby State, Power Down Mode for individual peripherals, and Processor Sleep Mode. In addition, MT6226M is also fabricated in advanced low leakage CMOS process, hence providing an overall ultra low leakage solution.

### **Package**

The MT6226M device is offered in a 13mm×13mm, 294-ball, 0.65 mm pitch, TFBGA package.

## **3.1.2 Platform Features**

### **General**

Integrated voice-band, audio-band and base-band analog front ends  
TFBGA 13mm×13mm, 294-ball, 0.65 mm pitch package

### **MCU Subsystem**

ARM7EJ-S 32-bit RISC processor  
High performance multi-layer AMBA bus  
Java hardware acceleration for fast Java-based games and applets  
Operating frequency: 26/52 MHz  
Dedicated DMA bus  
14 DMA channels  
284K Bytes zero-wait-state on-chip SRAM  
On-chip boot ROM for Factory Flash Programming  
Watchdog timer for system crash recovery  
2 sets of General Purpose Timer  
Circuit Switch Data coprocessor  
Division coprocessor

### **External Memory Interface**

Supports up to 8 external devices  
Supports 8-bit or 16-bit memory components with maximum size of up to 64M Bytes each  
Supports Flash and SRAM with Page Mode or Burst Mode  
Supports Pseudo SRAM  
Industry standard Parallel LCD Interface  
Supports multi-media companion chips with 8/16 bits data width  
Flexible I/O voltage of 1.8V ~ 2.8V for memory interface  
Configurable driving strength for memory interface

### **User Interfaces**

6-row × 7-column keypad controller with hardware scanner  
Supports multiple key presses for gaming

- SIM/USIM Controller with hardware T=0/T=1 protocol control
- 3 UARTs with hardware flow control and speed up to 921600 bps
- IrDA modulator/demodulator with hardware framer supports SIR mode of operation
- Real Time Clock (RTC) operating with a separate power supply
- General Purpose I/Os (GPIOs)
- 2 Sets of Pulse Width Modulation (PWM) Output
- Alert Output with Enhanced PWM or PDM
- 4~10 external interrupt lines

### **Connectivity**

- Full-speed USB 2.0 Device controller
- Multi Media Card/Secure Digital Memory Card/Memory Stick/Memory Stick Pro host controller

### **Security**

- Supports security key for code protection
- 56-bit unique/secret chip ID

### **Power Management**

- Power Down Mode for analog and digital circuits
- Processor Sleep Mode
- Pause Mode of 32KHz clocking at Standby State
- 7-channel Auxiliary 10-bit A/D Converter for charger and battery monitoring and photo sensing

### **Test and Debug**

- Built-in digital and analog loop back modes for both Audio and Baseband Front-End
- DAI port complying with GSM Rec.11.10
- JTAG port for debugging embedded MCU

## **3.1.3 MODEM Features**

### **Radio Interface and Baseband Front End**

- GMSK modulator with analog I and Q channel outputs
- 10-bit D/A Converter for uplink baseband I and Q signals
- 14-bit high resolution A/D Converter for downlink baseband I and Q signals
- Calibration mechanism of offset and gain mismatch for baseband A/D Converter and D/A Converter
- 10-bit D/A Converter for Automatic Power Control
- 13-bit high resolution D/A Converter for Automatic Frequency Control
- Programmable Radio RX filter
- 2 Channels bi-directional Baseband Serial Interface (BSI) with 3-wire or 4-wire control
- 10-Pin Baseband Parallel Interface (BPI) with programmable driving strength
- Multi-band support

### **Voice and Modem CODEC**

- Dial tone generation
- Voice Memo
- Noise Reduction
- Echo Suppression / Echo Cancellation
- Advanced Sidetone Oscillation Reduction
- Digital sidetone generator with programmable gain
- Two programmable acoustic compensation filters
- GSM/GPRS quad vocoders for adaptive multirate (AMR), enhanced full rate (EFR), full rate



(FR) and half rate (HR)  
FR error concealment  
GSM channel coding, equalization and A5/1 and A5/2 ciphering  
GPRS GEA1 and GEA2 ciphering  
Programmable GSM/GPRS Modem  
Packet Switched Data with CS1/CS2/CS3/CS4 coding schemes  
GSM Circuit Switch Data  
GPRS Class 12

### **Voice Interface and Voice Front End**

Two microphone inputs sharing one low noise amplifier with programmable gain and automatic gain control (AGC) mechanism  
Voice power amplifier with programmable gain  
2nd order Sigma-Delta A/D Converter for voice uplink path  
D/A Converter for voice downlink path  
Supports half-duplex hands-free operation  
Compliant with GSM 03.50

## **3.1.4 Multi-Media Features**

### **LCD/NAND Flash Interface**

18-bit Parallel Interface supports 8/16 bit NAND flash and 8/9/16/18 bit Parallel LCD  
8/16 bit NAND Flash Controller with 1-bit ECC correction for mass storages  
2 Chip selects available for high-density NAND flash device  
Serial LCD Interface with 8/9 bit format support

### **LCD Controller**

Hardware accelerated display  
Supports simultaneous connection to up to 2 parallel LCD and 1 serial LCD modules  
Supports format: RGB332, RGB444, RGB565, RGB666, RGB888  
Supports LCD panel maximum resolution up to 800x600 at 16bpp  
Supports hardware display rotation  
Capable of combining display memories with up to 4 blending layers  
Accelerated Gamma correction with programmable gamma table.

### **Image Signal Processor**

8/10 bit Bayer format image input  
YUV422 format image input  
Capable of processing image of size up to 1.3M pixels  
Lens shading compensation  
Defect pixel correction  
Synchronous flash light control  
Optical black correction  
Color Correction Matrix  
Gamma Correction  
Automatic Exposure Control  
Automatic focus control  
Automatic White Balance Control  
Edge Enhancement Support  
Flexible I/O voltage of 1.8V ~ 2.8V

### **JPEG Decoder**

ISO/IEC 10918-1 JPEG Baseline and Progressive modes

- Supports all possible YUV formats, including grayscale format
- Supports all DC/AC Huffman table parsing
- Supports all quantization table parsing
- Supports restart interval
- Supports SOS, DHT, DQT and DRI marker parsing
- IEEE Std 1180-1990 IDCT Standard Compliant
- Supports progressive image processing to minimize storage space requirement
- Supports reload-able DMA for VLD stream

## **JPEG Encoder**

- ISO/IEC 10918-1 JPEG baseline mode
- ISO/IEC 10918-2 Compliance
- Supports YUV422 and grayscale formats
- Standard DC and AC Huffman tables
- Provides 14 levels of encode quality

## **Image Data Processing**

- High throughput hardware scalar capable of tailoring image to arbitrary size
- Horizontal scaling in averaging method
- Vertical scaling in bilinear method
- Simultaneous scaling for MPEG-4 encode and LCD display
- YUV and RGB color space conversion
- Pixel format transform
- Boundary padding
- Accelerated Pixel-based luminance/chrominance processing: hue/saturation/intensity/color adjustment, Gamma correction and grayscale/invert/sepia-tone effects
- Accelerated Programmable Spatial Filtering : Linear filter, Non-linear filter and Multi-pass artistic effects
- Hardware accelerated image editing

## **MPEG-4/H.263 CODEC**

- Hardware Video CODEC
- ISO/IEC 14496-2 simple profile:
  - decode @ level 0/1/2/3
  - encode @ level 0
- Supported visual tools for decoder: I-VOP, P-VOP, AC/DC prediction, 4-MV, Unrestricted MV, Error Resilience, Short Header
- Error Resilience for decoder: Slice Resynchronization, Data Partitioning, Reversible VLC
- Supported visual tools for encoder: I-VOP, P-VOP, Half-pel, DC prediction, Unrestricted MV, Reversible VLC, Short Header
- Supports encoding motion vector of range up to -64/+63.5 pixels
- ITU-T H.263 profile 0 @ level 10
- AAC/HE-AAC/AMR audio decode support
- AMR audio encode support

## **2D Accelerator**

- Rectangle fill
- BitBlt: multi-BitBlt without transform, 7 rotate, mirror (transparent) BitBlt
- Alpha blending
- Line drawing: normal line, dotted line
- Font caching: normal font, Italic font
- Supports 16-bpp RGB565 and 8-bpp index color odes with one color palette inside

Command queue with 32 levels

### **Audio CODEC**

Wavetable synthesis with up to 64 tones

Advanced wavetable synthesizer capable of generating simulated stereo

Wavetable including GM full set of 128 instruments and 47 sets of percussions

PCM Playback and Record

Digital Audio Playback

HE-AAC decode support

### **Audio Interface and Audio Front End**

Supports I2S interface

High resolution D/A Converters for Stereo Audio playback

Stereo analog input for stereo audio source

Analog multiplexer for Stereo Audio

Stereo to Mono Conversion

FM radio recording

## **3.1.5 General Description**

Figure 3-1-2 details the block diagram of MT6226M. Based on a dual-processor architecture, MT6226M integrates both an ARM7EJ-S core and a digital signal processor core. ARM7EJ-S is the main processor that is responsible for running high-level GSM/GPRS protocol software as well as multi-media applications. The digital signal processor handles the low-level MODEM as well as advanced audio functions. Except for some mixed-signal circuitries, the other building blocks in MT6226M are connected to either the microcontroller or the digital signal processor. Specifically, MT6226M consists of the following subsystems:

Microcontroller Unit (MCU) Subsystem - includes an ARM7EJ-S RISC processor and its accompanying memory management and interrupt handling logics.

Digital Signal Processor (DSP) Subsystem - includes a DSP and its accompanying memory, memory controller, and interrupt controller.

MCU/DSP Interface - where the MCU and the DSP exchange hardware and software information.

Microcontroller Peripherals - includes all user interface modules and RF control interface modules.

Microcontroller Coprocessors - runs computing-intensive processes in place of Microcontroller.

DSP Peripherals - hardware accelerators for GSM/GPRS channel codec.

Multi-media Subsystem - integrates several advanced accelerators to support multi-media applications.

Voice Front End - the data path for converting analog speech from and to digital speech.

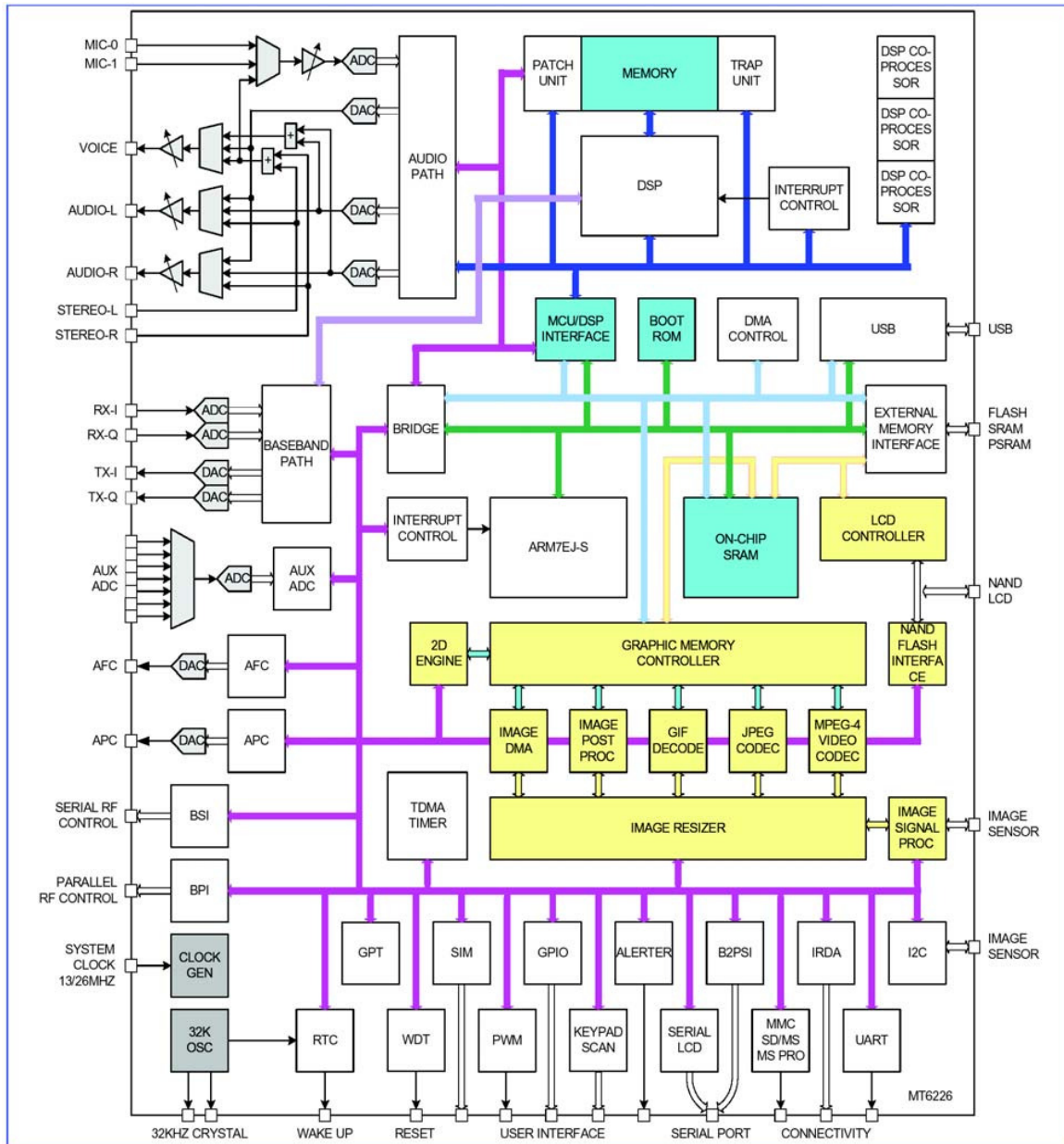
Audio Front End - the data path for converting stereo audio from stereo audio source

Baseband Front End - the data path for converting digital signal from and to analog signal of RF modules.

Timing Generator - generates the control signals related to the TDMA frame timing.

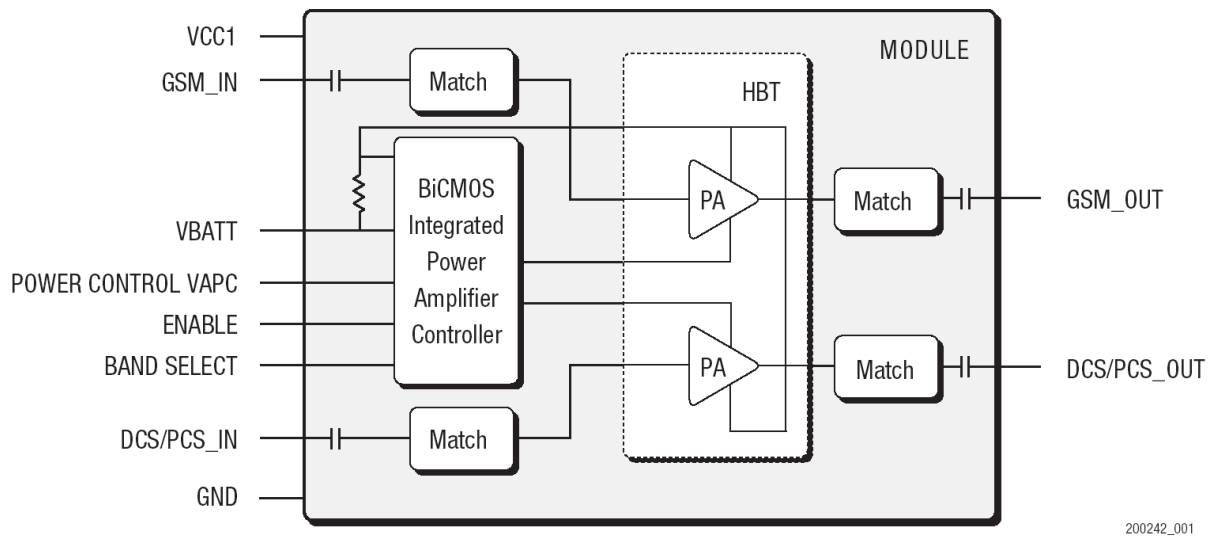
Power, Reset and Clock subsystem - manages the power, reset, and clock distribution inside MT6226M.

Details of the individual subsystems and blocks are described in following Chapters.



**Figure.3-1-2 MT6226M BLOCK DIAGRAM**

### 3.2 Power Amplifier Module (SKY77318)



**Figure.3-2-1 SKY77318 FUNCTIONAL BLOCK DIAGRAM**

The SKY77318 Power Amplifier Module (PAM) is designed in a low profile (1.2 mm), compact form factor for quad-band cellular handsets comprising GSM850/900, DCS1800, and PCS1900 operation. The PAM also supports Class 12 General Packet Radio Service (GPRS) multi-slot operation.

The module consists of separate GSM PA and DCS1800/PCS1900 PA blocks, impedance-matching circuitry for 50  $\Omega$  input and output impedances and a Power Amplifier Control (PAC) block with an internal current-sense resistor. The custom BiCMOS integrated circuit provides the internal PAC function and interface circuitry. Fabricated onto a single Gallium Arsenide (GaAs) die, one Heterojunction Bipolar Transistor (HBT) PA block supports the GSM bands and the other supports the DCS1800 and PCS1900 bands. Both PA blocks share common power supply pins to distribute current. The GaAs die, the Silicon (Si) die, and the passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold.

RF input and output ports of the SKY77318 are internally matched to a 50  $\Omega$  load to reduce the number of external components for a quad-band design. Extremely low leakage current (2.5  $\mu\text{A}$ , typical) of the dual PA module maximizes handset standby time. The SKY77318 also contains bandselect switching circuitry to select GSM (logic 0) or DCS/PCS (logic 1) as determined from the Band Select (BS) signal. In [Figure 1](#) below, the BS pin selects the PA output (DCS/PCS\_OUT or GSM\_OUT) and the Analog Power Control (VAPC) controls the level of output power.

The VBATT pin connects to an internal current-sense resistor and interfaces to an integrated power amplifier control (iPAC.) function, which is insensitive to variations in temperature, power supply, process, and input power. The ENABLE input allows initial turn-on of PAM circuitry to minimize battery drain.

### 3.3 Transceiver Module (MT6139)

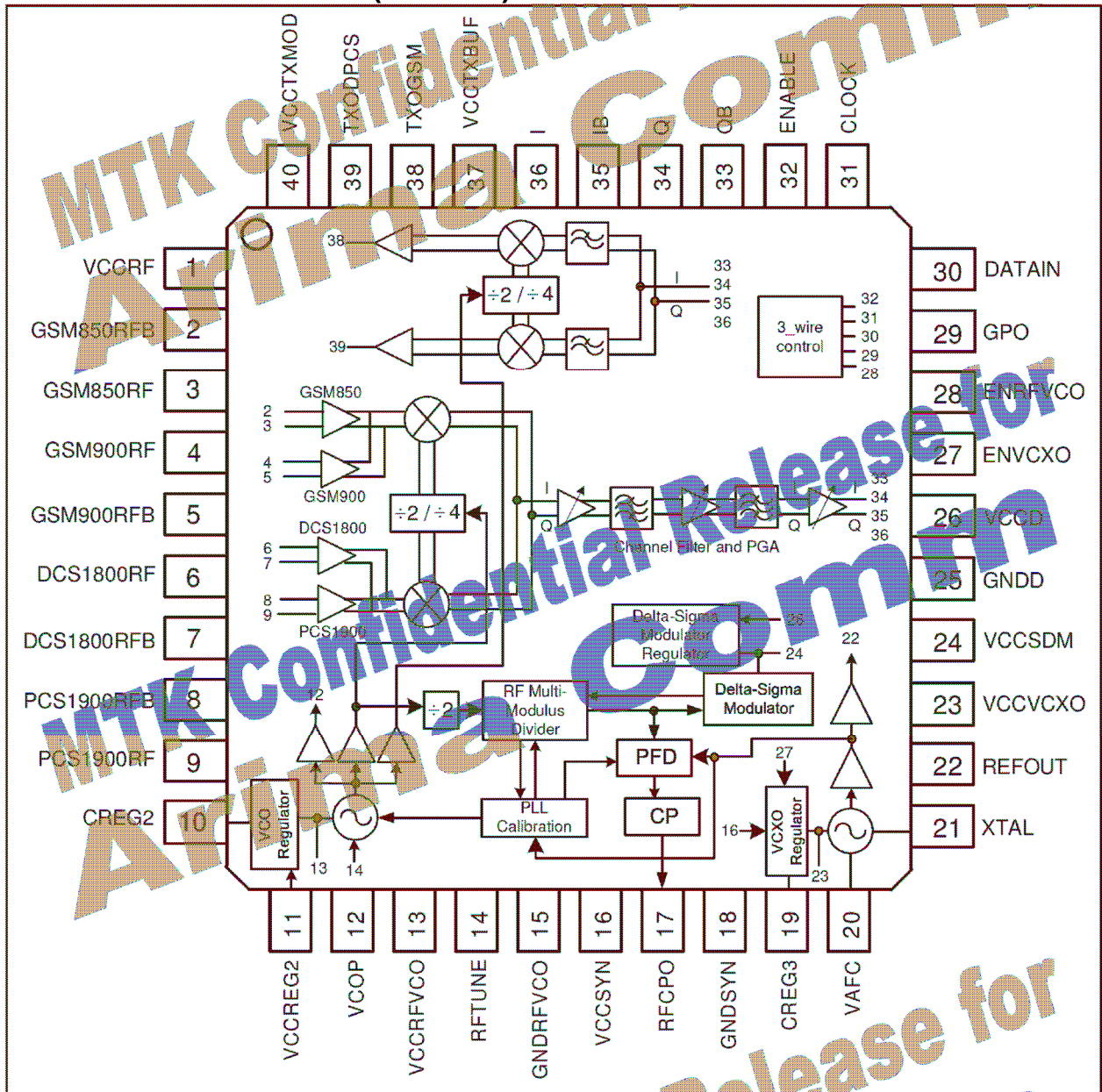


Figure.3-3-1 MT6139 FUNCTIONAL BLOCK DIAGRAM

#### 3.3.1 General Descriptions

MT6139 is a highly integrated RF transceiver IC for Global Systems for Mobile communication (GSM850, GSM900), Digital Cellular communication Systems (DCS1800), and Personal Communication Services (PCS1900) quad band cellular systems. The MT6139 includes four LNA's, two RF quadrature mixers, a channel filter, a programmable gain amplifier for the receiver, a high precision IQ modulator for the transmitter, a VCXO oscillator, on-chip regulators, and a fully programmable sigma-delta fractional-N synthesizer with an on-chip LC VCO. The MT6139 includes control circuits to implement different operating modes. The device is housed in a 40-pin QFN SMD package with a downset paddle for additional grounding.

A functional block diagram of the MT6139 and its pin assignment is shown in Figure 3-3-1

### **3.3.2 Features**

#### **Receiver**

- Direct conversion architecture
- Quad differential input LNAs
- Quadrature RF mixers
- Fully integrated channel filter
- 92 dB gain with 60 dB gain control range

#### **Transmitter**

- High precision IQ modulator
- Direct conversion architecture

#### **Frequency Synthesizer**

- Single integrated, fully programmable fractional-N synthesizer
- Fully integrated wide range RFVCO
- Fast settling time suitable for multi-slot GPRS application

#### **Voltage Control Crystal Oscillator (VCXO)**

- 26 MHz crystal oscillator
- Programmable capacitor array for coarse tuning
- Internal varactor for fine tuning

#### **Regulators**

- Built-in low-noise, low-dropout (LDO) regulators for low-voltage VCO core
- Built-in low-noise, low-dropout (LDO) regulators for VCXO core
- Built-in LDO regulator for Sigma-Delta modulator

#### **Low power consumption**

#### **QFN (Quad Flat Non-lead) Package 40pin SMD**

#### **3-wire serial interface**

#### **MT6139 is fabricated using a 0.35 mm BiCMOS process**

### **3.3.3 Applications**

- GSM900 / DCS1800 dual-band handsets
- GSM900 / PCS1900 dual-band handsets
- GSM850 / PCS1900 dual-band handsets
- GSM900 / DCS1800 / PCS1900 triple-band handsets
- GSM850 / GSM900 / DCS1800 / PCS1900 quad-band handsets



### 3.4 Bluetooth Module (MTK\_MT6601)

The internal connection of the major physical blocks and their associated external interfaces are shown in **Figure 3-4-1**.

The transceiver section of MT6601 incorporates the complete receive and transmit paths, including PLL, VCO, LNA, PA, modulator, demodulator.

The baseband signal processor incorporates hardware engines performing frequency hopping, error correcting, whitening, encrypting, data packet assembling and de-assembly to offload the embedded ARM7.

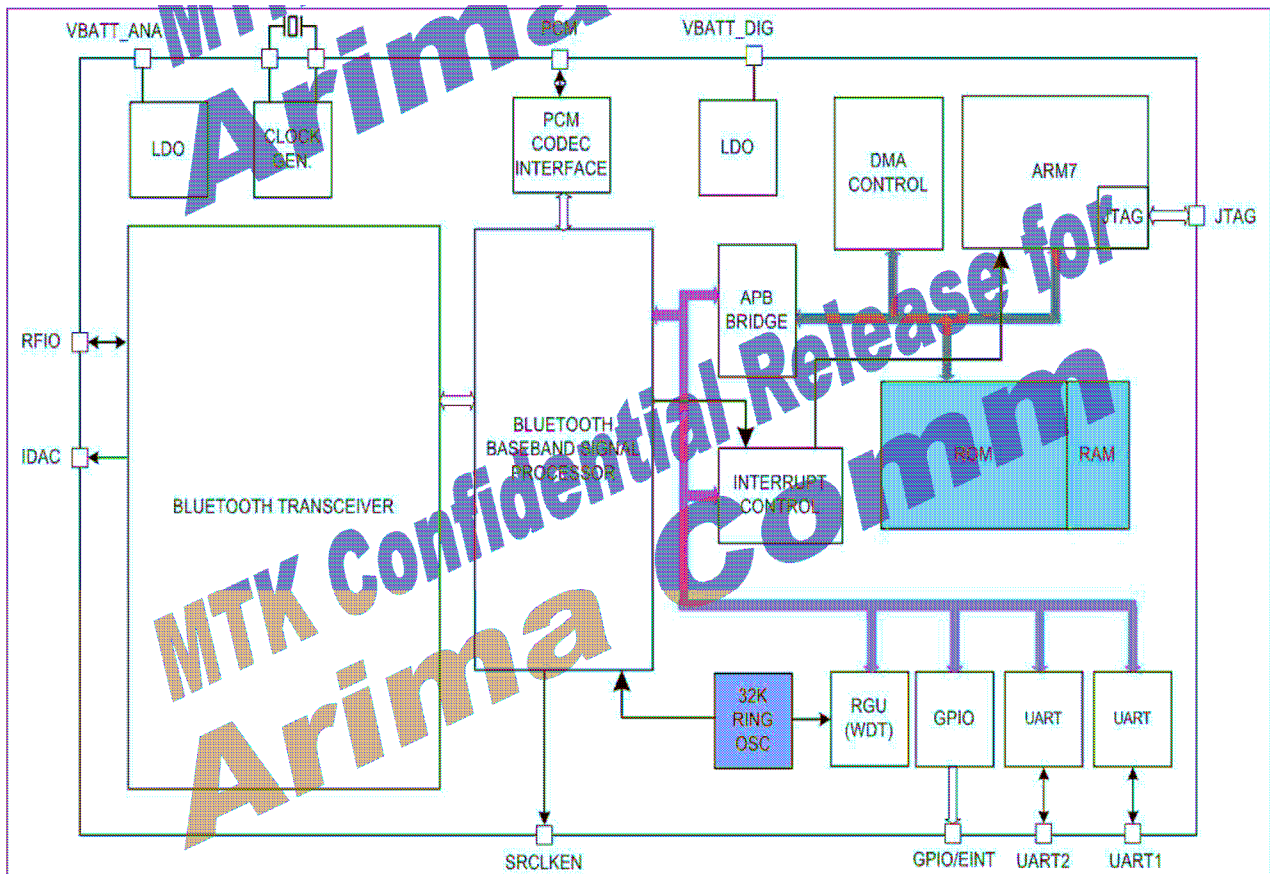


Figure.3-4-1 MT6601 FUNCTIONAL BLOCK DIAGRAM



### **3.4.1 General description**

Bluetooth is a low-cost wireless technology used to provide “ad hoc” networking between versatile portable devices such as cell phones, PDAs, digital cameras, headsets, and more.

MT6601 is a highly integrated Bluetooth platform IC. It includes powerful baseband processing capabilities with rich features and a high performance transceiver, all in a compact single package.

### **3.4.2 Features**

#### **Radio features**

- Fully compliant with Bluetooth specification 1.2.

- Low out-of-band spurious emissions supports simultaneous operation with GPS, GSM/GPRS worldwide radio systems.

- Direct conversion architecture with no external channel filter or VCO resonator components.

- Fully integrated RF front-end matching circuits eliminates external balance and T/R switch.

#### **Transmitter features**

- Meets class 2 and class 3 transmitting requirement.

- Support Class 1 operation with external PA.

#### **Receiver features**

- 85dBm sensitivity with excellent interference rejection performance.

- Hardware AGC dynamically adjusts receiver performance in changing environments.

#### **Baseband features**

- eSCO support.

- 3 simultaneous SCO channels.

- Scatternet support.

- Sniff mode, hold mode, and part mode support.

- AFH and PTA collaborative support for WLAN/BT coexistence.

- Lower power mode and deep sleep mode enables ultra low power consumption

#### **Platform features**

- On-chip voltage regulation simplifies voltage input requirements.

- Low power consumption in active and standby mode.

- Wide ranges of crystal and external reference clock support.

- PCM interface and built-in transcoders for A-law,  $\mu$ -law and linear voice.

- Built-in hardware modem engine for access code correlation, header error correction, forward error correction, CRC, whitening, and encryption.

- High speed UART support.

- Built-in RAM and ROM with patch system.

#### **Software features**

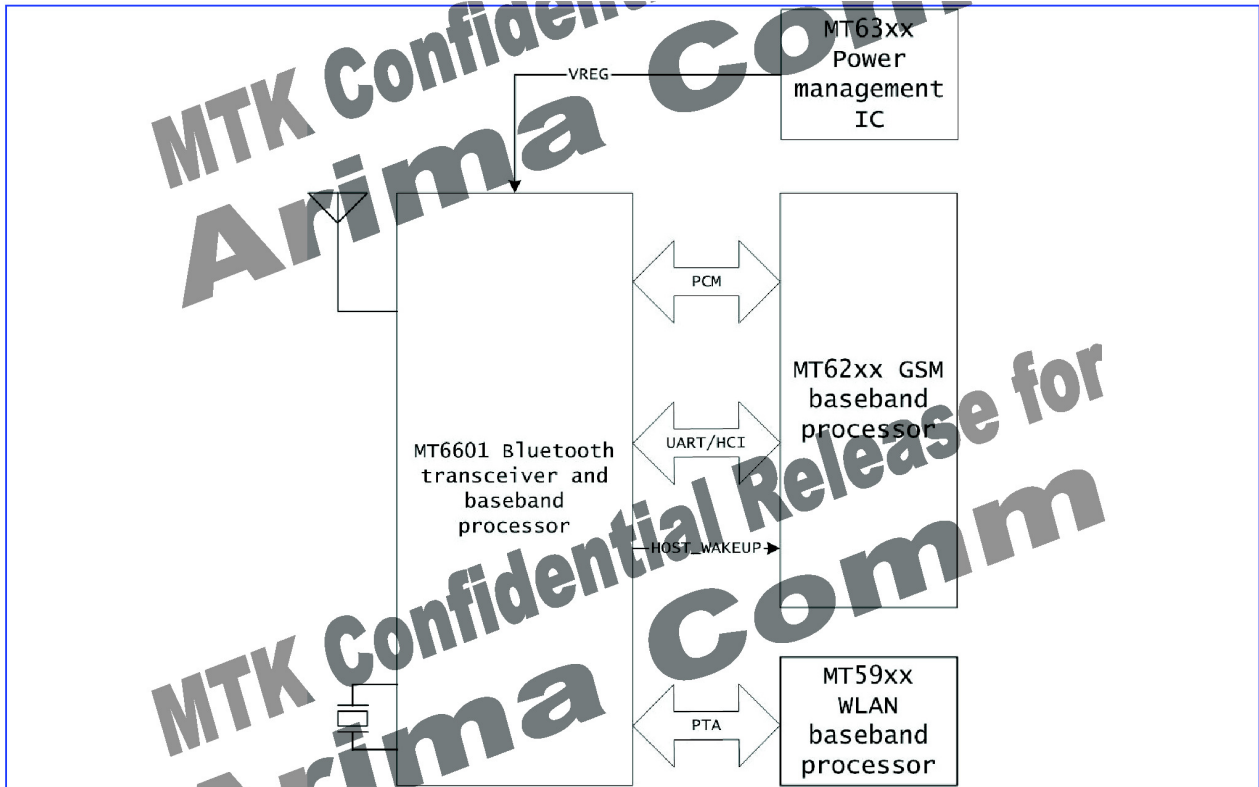
- Supports standard HCI interface.

### 3.4.3 Applications

MT6601 is designed to provide direct interface with existing handset chip as shown in **Figure 3-4-2**.

The PCM interface provides master or slave mode operation with programmable data frequency to connect to the voice channel with the GSM baseband. The UART interface supports hardware flow control as well as high-speed baud rate. The PTA interface accommodates different arbitration scheme enabling efficient channel utilization in co-existence environment.

The external reference clock interface supports wide ranges of frequencies that the mobile phones use.



**Figure.3-4-2 Mobile phone application.**

### 3.5 PMIC (MT6318)

Power management is one of the most important functions in this PMIC. The power management function applies proper management procedures and control functions to the mobile handset's battery, charger, and power supply. More specifically, the management criterion is to provide power to the mobile phone while extending the standby/active time as long as possible.

The block diagram implemented in PMIC is shown further below to describe the relationships between different states.

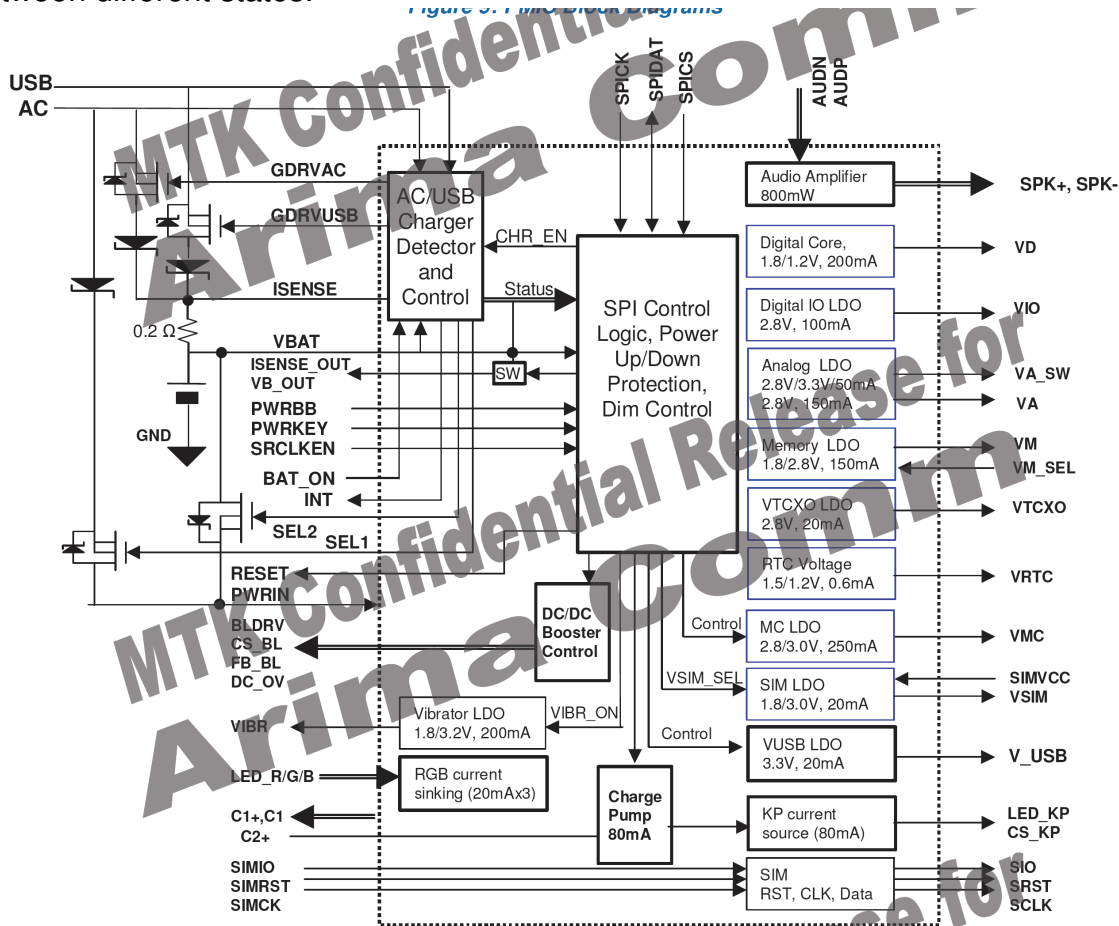


Figure.3-5-1 MT6318 FUNCTIONAL BLOCK DIAGRAM

### 3.5.1 Features

- Handles all GSM/GPRS Baseband Power Management
- Input range: 2.8 V ~ 5.0 V
- Charger input of up to 15 V
- 11 LDOs optimized for specific GSM/GPRS subsystems
- 2-step RTC LDO
- 600 mW Class AB audio amplifier
- Booster for series backlight LED driver
- Charge pump for parallel backlight LED driver
- SPI interface
- Pre-charge indication
- Li-ion battery charge function
- SIM card interface
- RGB LED driver
- Vcore for power-saver mode
- Over-current and thermal overload protection
- Programmable under voltage lockout protection
- Power-on reset and start-up timer
- 96-pin TFBGA package

### 3.5.2 Applications

GSM/GPRS mobile handsets, basic phones and high-end phones.

### 3.5.3 General Description

The MT6318 is a power management system chip optimized for GSM/GPRS handsets, especially those based on the MediaTek MT621x/MT622x system solution. MT6318 contains 11 LDOs, one to power each of the critical GSM/GPRS sub-blocks. Sophisticated controls are available for power-up during battery charging, for the keypad interface, and for the RTC alarm. The MT6318 is optimized for maximum battery life.

The 2-step RTC LDO design allows the RTC circuit to stay alive without a battery for several hours.

The MT6318 battery charger can be used with a lithium-ion (Li+) battery.

The SIM interface provides the level shift between SIM card and microprocessor.

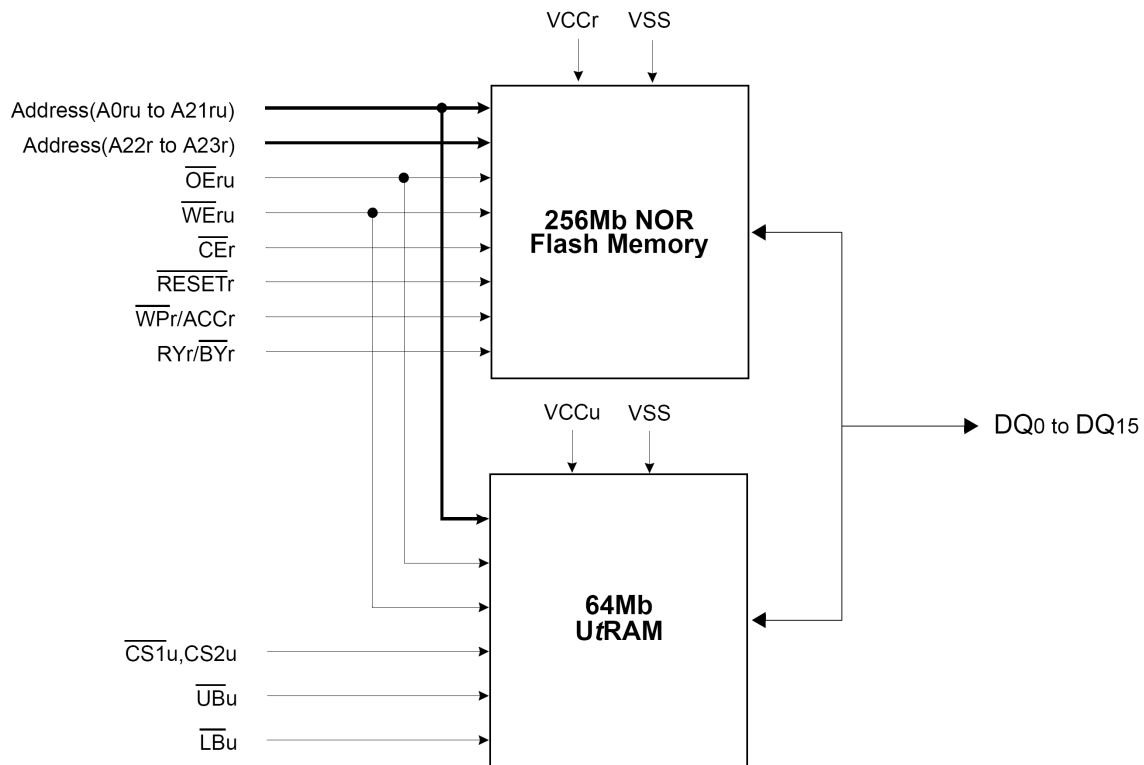
The MT6318 is available in a 96-pin TFBGA package.

The operating temperature range is -25°C to +85°C.

### 3.5.4 Ordering Information

ORDER #	MARKING	TEMP. RANGE	PACKAGE
MT6318A	MT6318A/AY	-25°C to +85°C	TFBGA - 96L

### 3.6 Memory Module (K5L5563CAA-D770)



**Figure.3-6-1 K5L5563CAA-D770 FUNCTIONAL BLOCK DIAGRAM**

#### 3.6.1 FEATURES

<Common>

- Operating Temperature : -25°C ~ 85°C
- Package : 84Ball FBGA \_ 8.0mm x 11.6mm x 1.2mmt 0.8mm ball pitch

<NOR Flash>

- Single Voltage, 2.7V to 3.1V for Read and Write operations
- Organization  
16M x16 bit (Word mode Only)
- Fast Read Access Time : 70ns
- Page Mode Operation  
8 Words Page access allows fast asynchronous read  
Page Read Access Time : 30ns
- Read While Program/Erase Operation
- Multiple Bank architectures (4 banks)  
Bank 0: 32Mbit (32Kw x 4 and 128Kw x 15)  
Bank 1: 96Mbit (128Kw x 48)  
Bank 2: 96Mbit (128Kw x 48)  
Bank 3: 32Mbit (32Kw x 4 and 128Kw x 15)
- OTP Block : Extra 256 word  
- 128word for factory and 128word for customer OTP
- Power Consumption (typical value)  
- Active Read Current: 30mA (@5MHz)  
- Program/Erase Current: 25mA  
- Read While Program or Read While Erase Current: 65mA  
- Standby Mode/Auto Sleep Mode: 20uA

- Support Single & 32word Buffer Program
  - WP/ACC input pin
    - Allows special protection of two outermost boot blocks on both ends of flash array at VIL, regardless of block protect status
    - Removes special protection at VIH, the two outermost blocks on both ends of flash array return to normal block protect status
    - Reduce program time at VHH : 6us/word at Write Buffer
  - Erase Suspend/Resume
  - Program Suspend/Resume
  - Unlock Bypass Program
  - Hardware /RESET Pin
  - Command Register Operation
  - Supports Common Flash Memory Interface
  - Endurance: 100,000 Program/Erase Cycles Minimum
  - Data Retention: 10 years
- <UtRAM>
- Process technology: CMOS
  - Organization: 4M x 16 bit
  - Power supply voltage: 2.7V~3.1V
  - 4-Page Read
  - Three state outputs
  - Supports power saving modes
- Internal TCSR (Temperature Compensated Self Refresh)

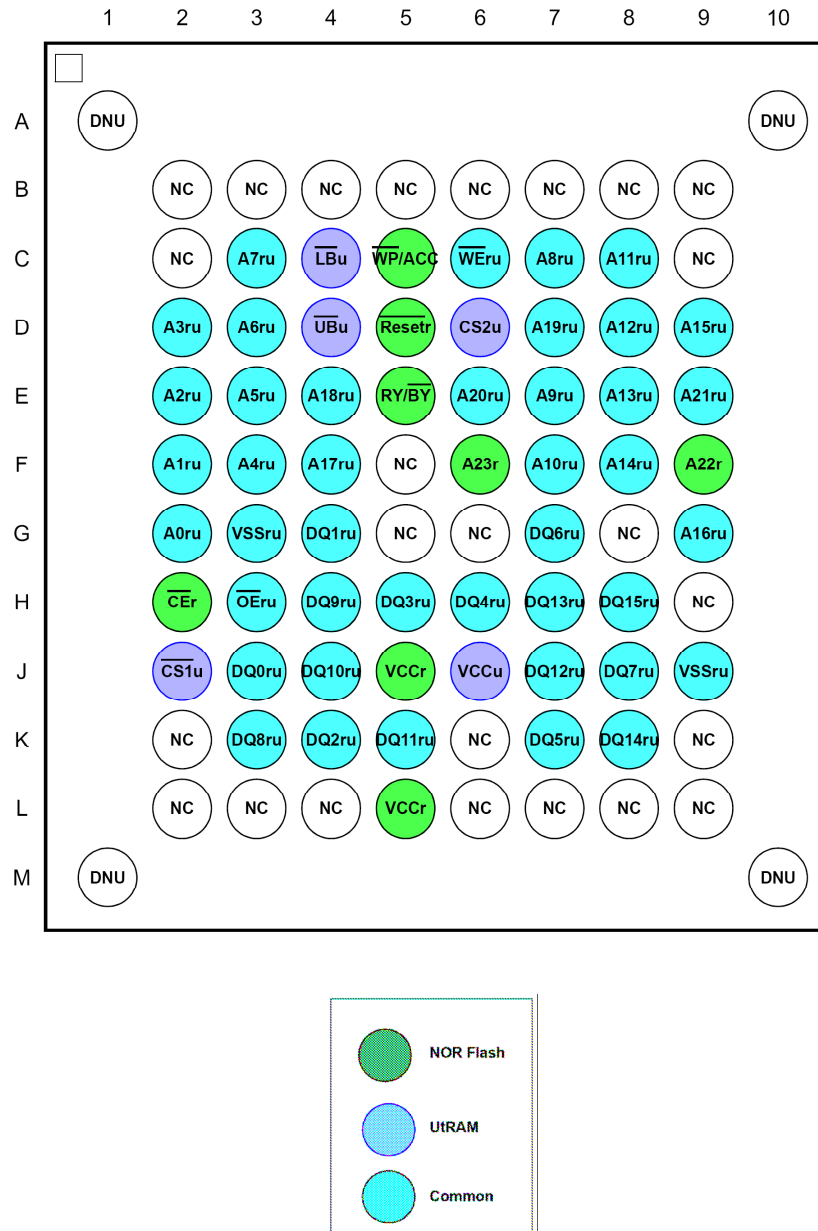
### 3.6.2 GENERAL DESCRIPTION

The K5L5563CAA is a Multi Chip Package Memory which combines 256Mbit NOR Flash Memory and 64Mbit Page UtRAM.

The 256Mb NOR Flash featuring single 3.0V power supply, is an 256Mbit NOR-type Flash Memory organized as 16M x16. The memory architecture of the device is designed to divide its memory arrays into 134 blocks with independent hardware protection. This block architecture provides highly flexible erase and program capability. The NOR Flash consists of four banks. This device is capable of reading data from one bank while programming or erasing in the other banks. The device offers fast page access time of 30ns with random access time of 70ns. The device's fast access times allow high speed microprocessors to operate without wait states. The device performs a program operation in unit of 16 bits (Word) and erases in units of a block. Single or multiple blocks can be erased. The block erase operation is completed within typically 1.6 sec. The device requires 15mA as program/erase current in the commercial and extended temperature ranges.

The 64Mb UtRAM is fabricated by SAMSUNG's advanced CMOS technology using one transistor memory cell. The device supports 4 page read operation and Industrial temperature range. The device also supports internal Temperature Compensated Self Refresh mode for the standby power saving at room temperature range.

The K5L5563CAA is suitable for the memory of mobile communication system to reduce not only mount area but also power consumption. This device is available in 84-ball FBGA package.

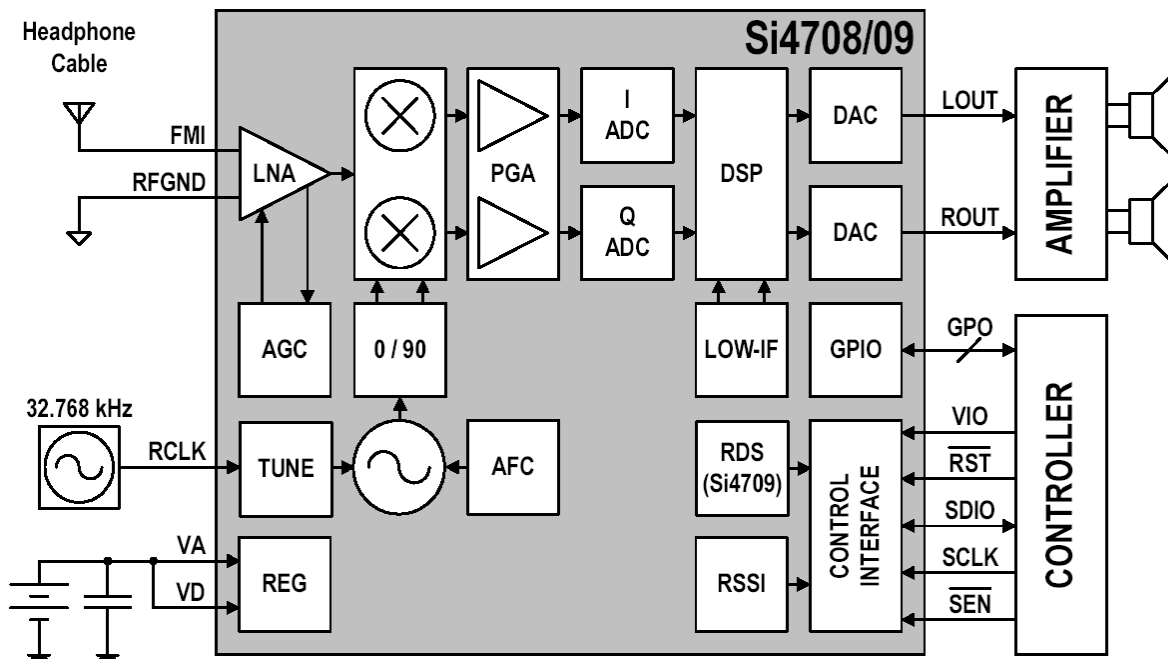


**Figure.3-6-2 K5L5563CAA-D770 PIN CONFIGURATION**

Ball Name	Description	Ball Name	Description
A0 to A21	Address Inputs (Common)	WE	Write Enable (Common)
A22 to A23	Address Inputs (NOR)	UBu	Upper Byte (UtRAM)
DQ0 to DQ15	Data Input/output (Common)	LBu	Lower Byte (UtRAM)
CEr	Chip Enable (NOR)	Vccr	Power Supply (NOR)
CS1u,CS2u	Chip Select (UtRAM)	Vccu	Power Supply (UtRAM)
OE	Output Enable (Common)	Vss	Ground (Common)
RESET	Hardware Reset (NOR)	NC	No Connection
WP/ACC	Hardware Write Protection/ Program Acceleration (NOR)	DNU	Do Not Use
RY/BY	Ready/Busy Output (NOR)		

**Figure.3-6-3 K5L5563CAA-D770 PIN Description**

### 3.7 FM Radio Module (Si4708)



**Figure. 3-7-1 Si4708 FM Receiver Block Diagram**

The Si4708/09 extends Silicon Laboratories Si4700 FM tuner family, and further increases the ease and attractiveness of adding FM radio reception to mobile devices through small size and board area, minimum component count, flexible programmability, and superior, proven performance. Si4708/09 software is backwards compatible to existing Si4700/01/02/03 FM Tuner designs and leverages Silicon Laboratories' highly successful and patented Si4700/01/02/03 FM tuner. The Si4708/09 benefits from proven digital integration and 100% CMOS process technology, resulting in a completely integrated solution. It is the industry's smallest footprint FM tuner IC requiring only 6.25 mm<sup>2</sup> board space and one external bypass capacitor.

The device offers significant programmability, catering to the subjective nature of FM listeners' audio preferences and variable FM broadcast environments worldwide.

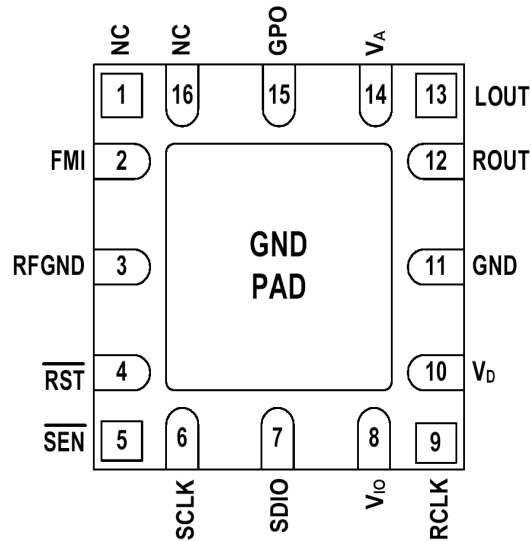
The Si4709 incorporates a digital processor for the European Radio Data System (RDS) and the US Radio Broadcast Data System (RBDS) including all required symbol decoding, block synchronization, error detection, and error correction functions.

RDS/RBDS\* enables data such as station identification and song name to be displayed to the user. The Si4709 offers a detailed RDS view and a standard view, allowing adopters to selectively choose granularity of software is backwards compatible to the proven Si4701/03, adopted by leading cell-phone and MP3 manufacturers world-wide.

The Si4708/09 is based on the superior, proven performance of Silicon Laboratories' Aero architecture offering unmatched interference rejection and leading sensitivity. The device uses the same programming interface as the Si4700/01/02/03 and supports multiple bus modes. Power management is simplified with an integrated regulator allowing direct connection to a 2.7 to 5.5 V battery for VD and 2.7 to 5.5 V battery for VA.

The Si4708/09 device's high level of integration and complete FM system production testing increases quality to manufacturers, improves device yields, and simplifies device manufacturing and final testing.



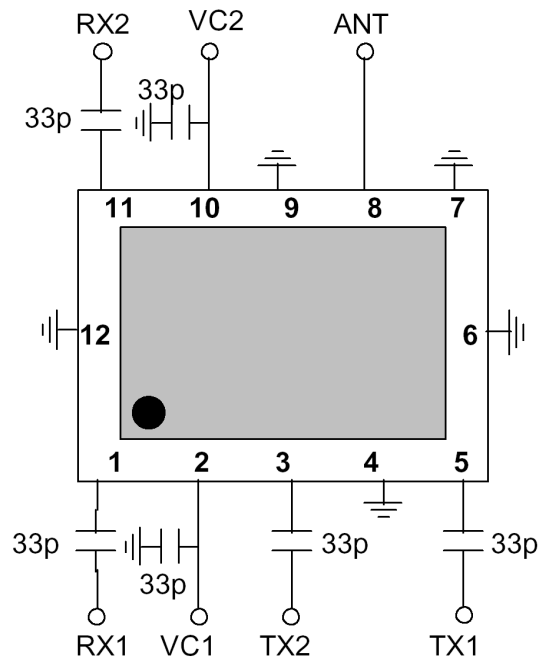


Top View

Pin Number(s)	Name	Description
1, 16	NC	No Connect. Leave floating.
2	FMI	FM RF inputs.
3	RFGND	RF ground. Connect to ground plane on PCB.
4	$\overline{\text{RST}}$	Device reset input (active low).
5	$\overline{\text{SEN}}$	Serial enable input (active low).
6	SCLK	Serial clock input.
7	SDIO	Serial data input/output.
8	$V_{IO}$	I/O supply voltage.
9	RCLK	External reference oscillator input.
10	$V_D$	Digital supply voltage. May be connected directly to battery.
11, PAD	GND	Ground. Connect to ground plane on PCB.
12	ROUT	Right audio output.
13	LOUT	Left audio output.
14	$V_A$	Analog supply voltage. May be connected directly to battery.
15	GPO	General purpose input/output.

3.8 Antenna Switch Module (ESHS-A085DC)

Top View



PIN LAYOUT

PIN1	GSM850/900_RX	PIN8	ANT
PIN2	VC1	PIN9	GND
PIN3	DCS/PCS_TX	PIN10	VC2
PIN4	GND	PIN11	DCS/PCS_RX
PIN5	GSM850/900_TX	PIN12	GND
PIN6	GND	PIN13	GND
PIN7	GND		

### 3.9 LCD Interface

## LCM Connector

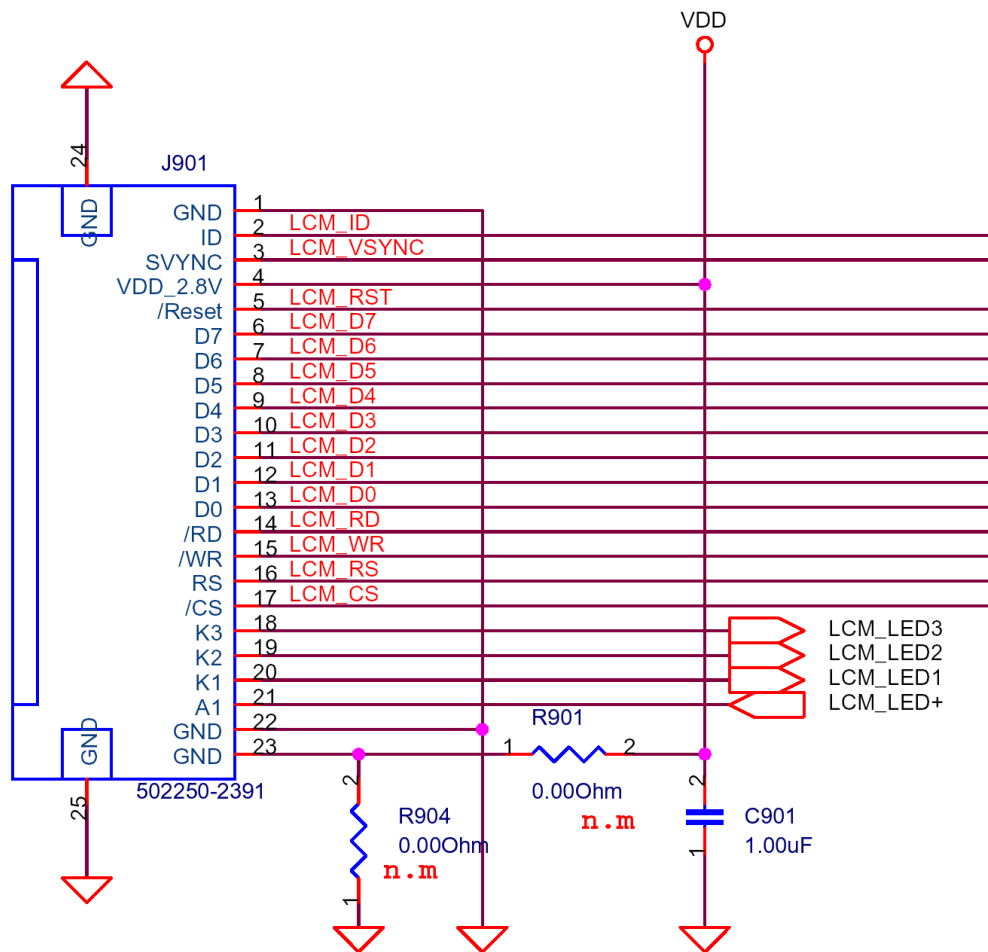


Figure.3-9-1 LCD Interface

The **IM200BBN3A** model is a Color TFT LCD supplied by LG Innotek. This main Module has a 2.0 inch diagonally measured active display area with 28(RGB)X160 resolution. Each pixel is divided into Red, Green and Blue sub-pixels and dots which are arranged in vertical stripes. Main LCD color is determined with 262,144 colors signal for each pixel. The **IM200BBN3A** has been designed to apply the interface method that enables low power, high speed, and high contrast. The **IM200BBN3A** is intended to support applications where thin thickness, wide viewing angle and low power are critical factors and graphic displays are important.

Block Diagram

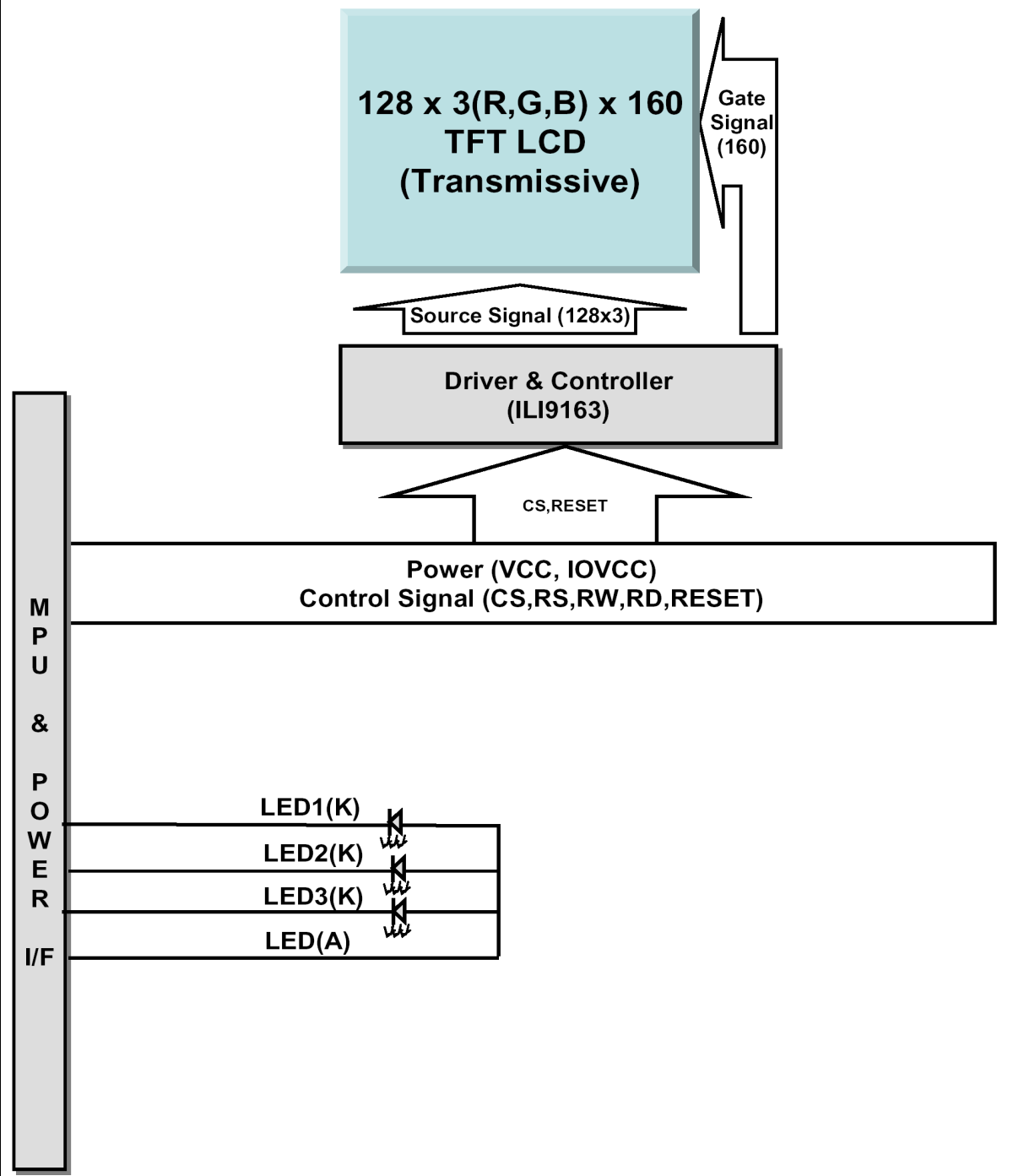


Figure. 3-9-2 IM200BBN3A Block Diagram

Pin No.	Symbol	Description	Remark
1	GND	Ground	-
2	ID	Low (GND)	-
3	VSHYNCOUT	Frame Sync Out	-
4	VDD (2.8)	Power Supply for LCD(2.6~3.3V)	-
5	RESET	Reset signal	-
6	D7	DATA7	
7	D6	DATA6	
8	D5	DATA5	-
9	D4	DATA4	
10	D3	DATA3	-
11	D2	DATA2	-
12	D1	DATA1	-
13	D0	DATA0	-
14	/RD	Read Strobe Signal	-
15	/WR	Write Strobe Signal	-
16	RS	Register Select Signal	-
17	/CS	Chip Selector signal	-
18	LED_Cathod3	LED Cathode3	-
19	LED_Cathod2	LED Cathode2	-
20	LED_Cathod1	LED Cathode1	-
21	LED_ Anode	LED Anode	-
22	GND	Ground	-
23	GND	Ground	-

### 3.10 SIM& Micro SD Card Interface

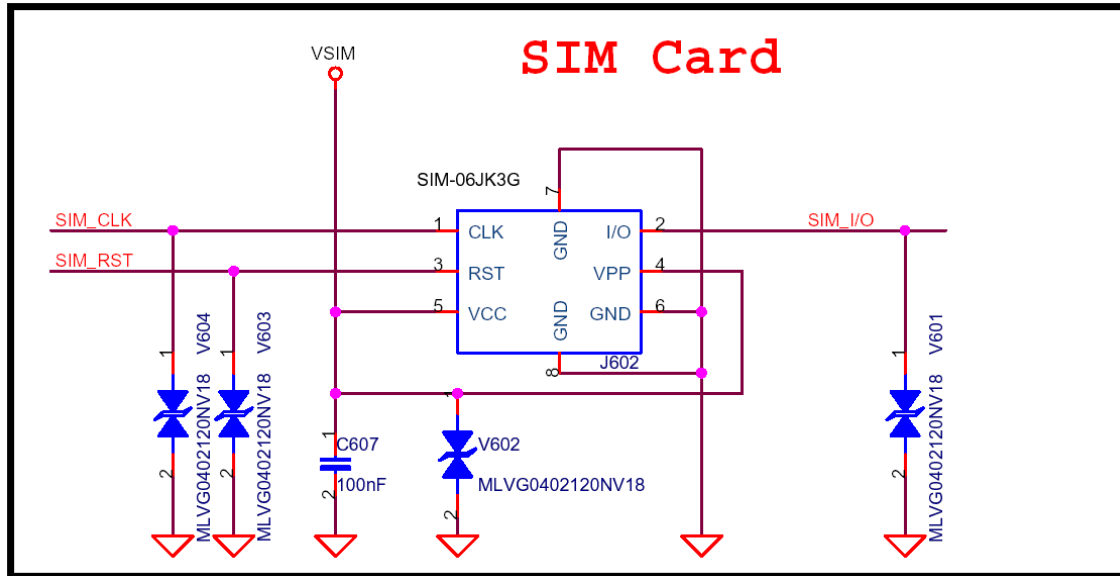


Figure.3-10-1 SIM CARD Interface

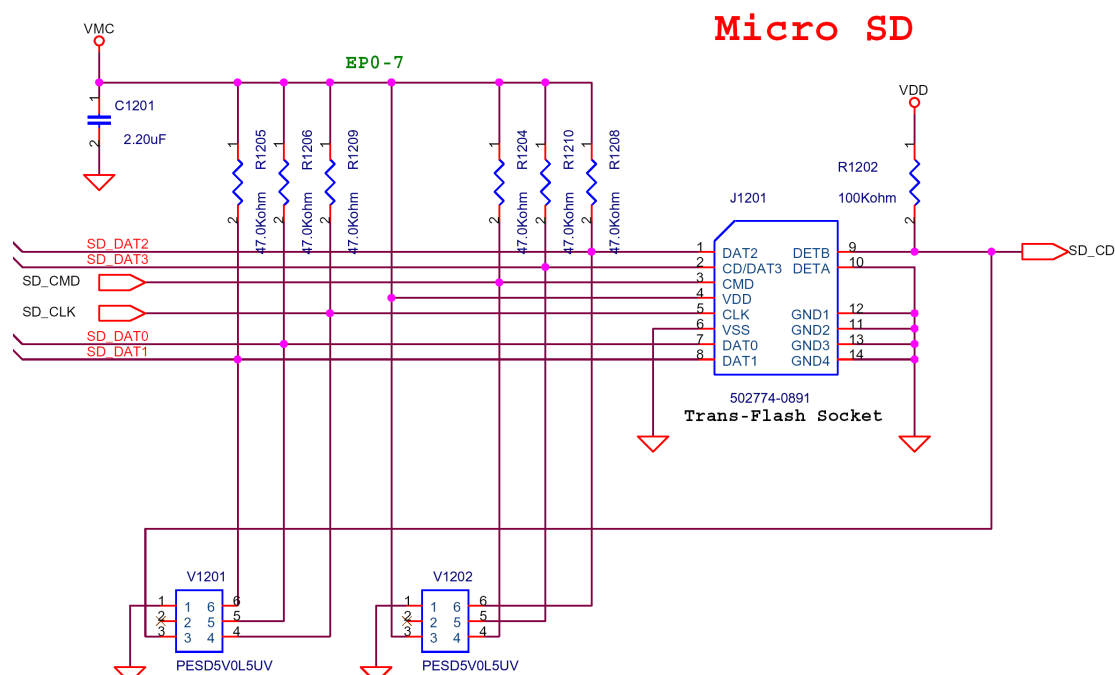


Figure.3-10-2 Micro SD CARD Interface

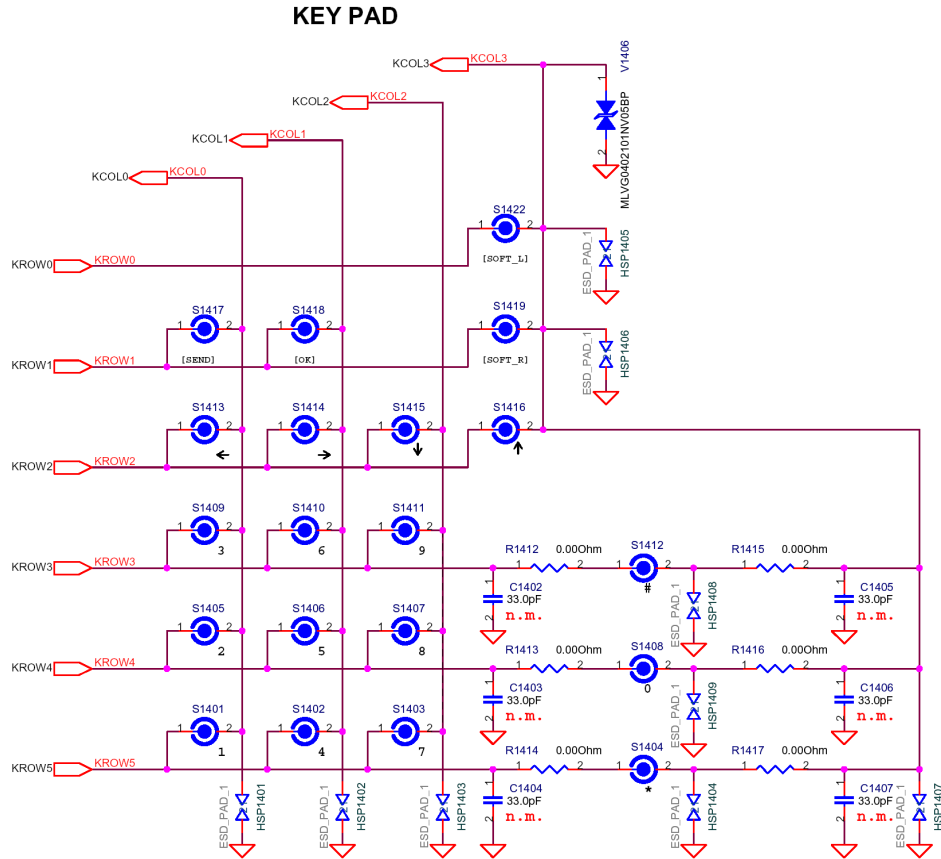
The MT6226 contains a dedicated smart card interface to allow the MCU access to the SIM card. It can operate via 4 terminals, using SIMVCC, SIMDATA, SIMRST, SIMCLK

The SIMVCC is used to control the external voltage supply to the SIM card. SIMRST is used as the SIM card reset signal. SIMDATA and SIMCLK are used for data exchange purpose.

The SIM interface acts as a half duplex asynchronous communication port and its data format is composed of ten consecutive bits: a start bit in state Low, eight information bits, and a tenth bit used for parity checking.

The micro SD CARD is controlled by MT6226.

### 3.11 KEYPAD Interface

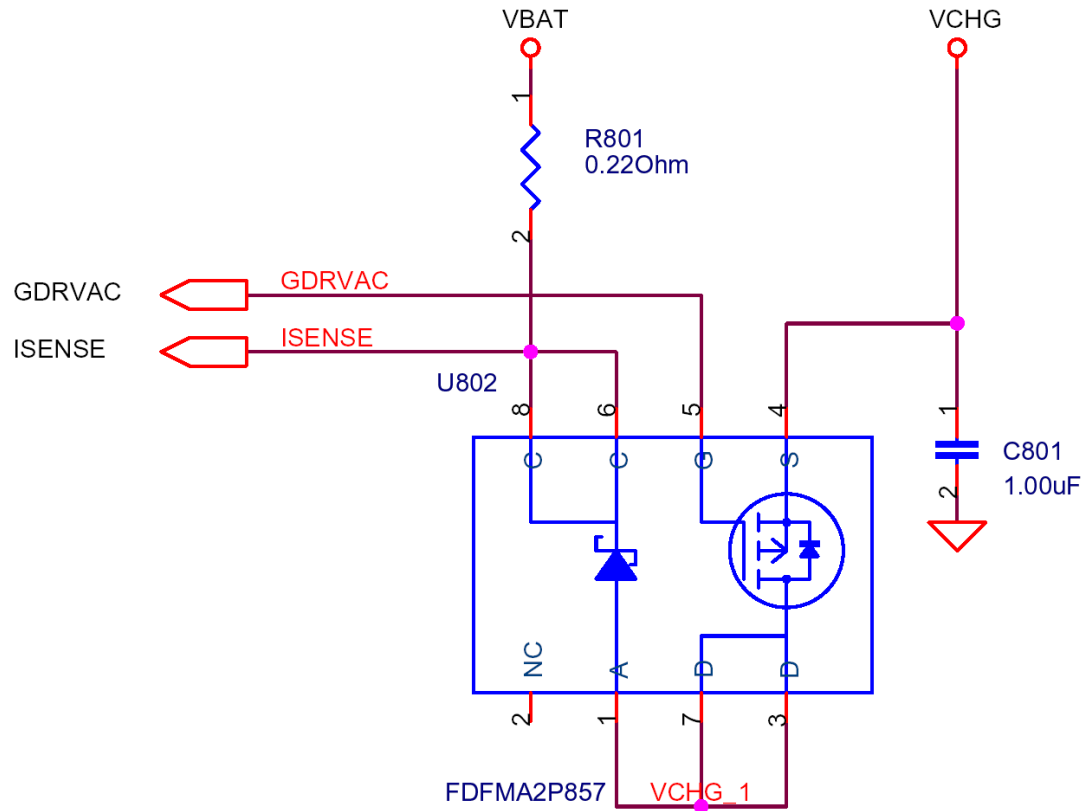


**Figure.3-11-1. KEYPAD Interface**

The keypad can be divided into two parts: one is the keypad interface including 4 columns and 6 rows; the other is the key detection block which provides key pressed, key released and de-bounce mechanisms. Each time the key is pressed or released, i.e. something different in the 4 x 6 matrix, the key detection block senses the change and recognizes if a key has been pressed or released. Whenever the key status changes and is stable, a KEYPAD IRQ is issued.

The MCU can then read the key(s) pressed directly in KP\_HI\_KEY, KP\_MID\_KEY and KP\_LOW\_KEY registers. To ensure that the key pressed information is not missed, the status register in keypad is not read-cleared by APB read command. The status register can only be changed by the key-pressed detection FSM.

### 3.12 Battery Charging Block Interface



**Figure.3-12-1 Charging IC Interface**

The FDFMA2P857 is controlled by MT6318.



3.13 Audio Interface

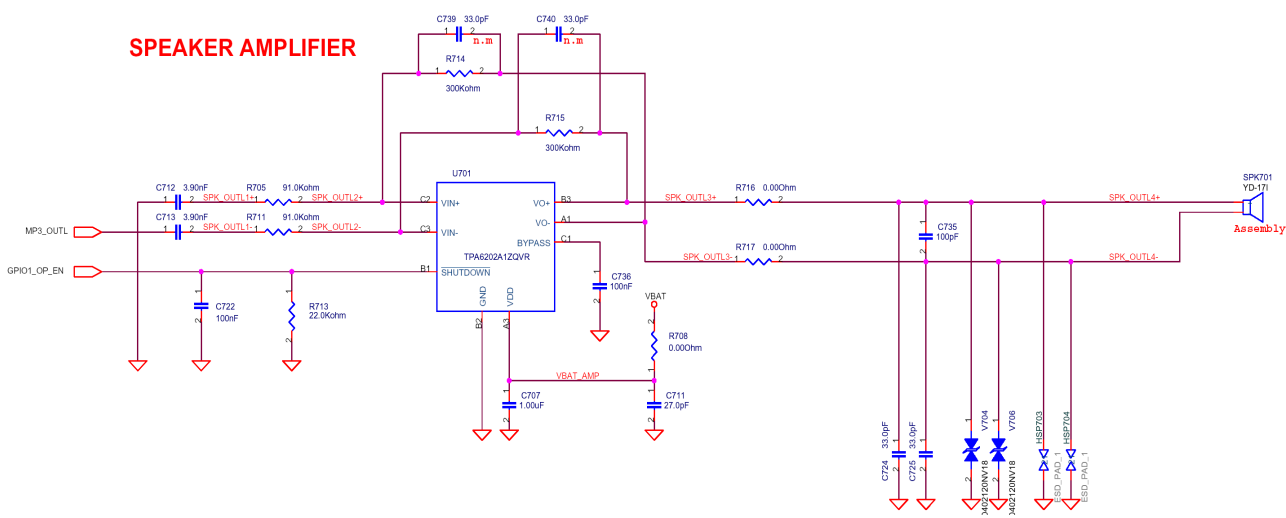


Figure.3-13-1 Main Speaker Interface

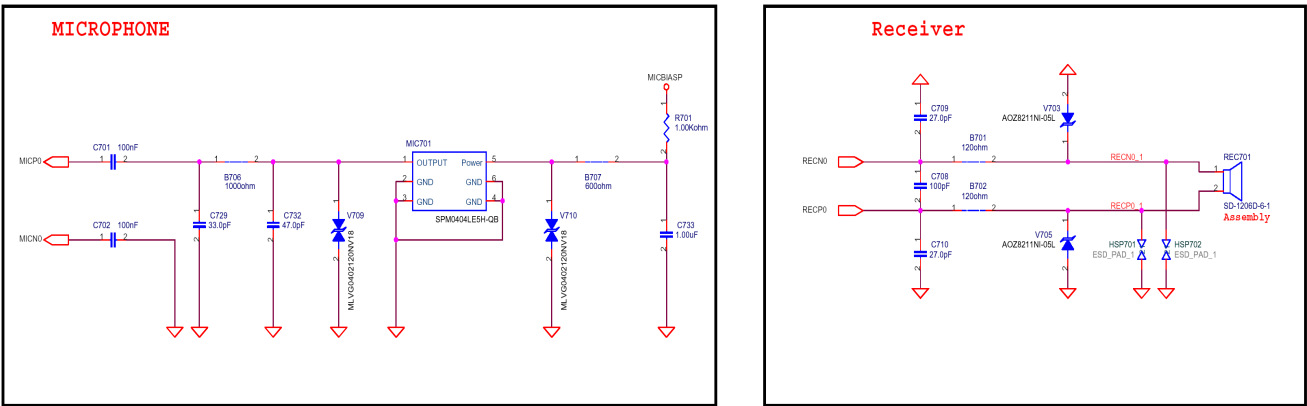
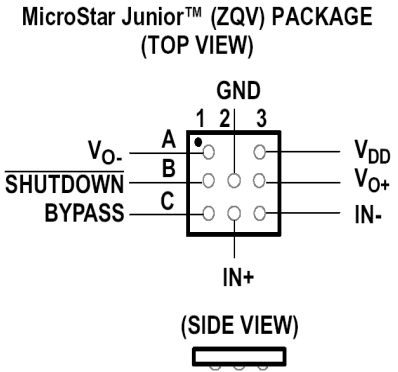


Figure.3-13-2 Main Microphone&Recevice Interface

The TPA6202A1 is a 1.25W mono amplifier designed to drive a speaker with at least 8-Ω impedance while consuming less than 37 mm2 (ZQV package option) total printed-circuit board (PCB) area in most applications. This device operates from 2.5V to 5.5V, drawing only 1.7mA of quiescent supply current.

The TPA6202A1 is available in the space-saving 2 mm x 2 mm MicroStar Junior™ BGA package.

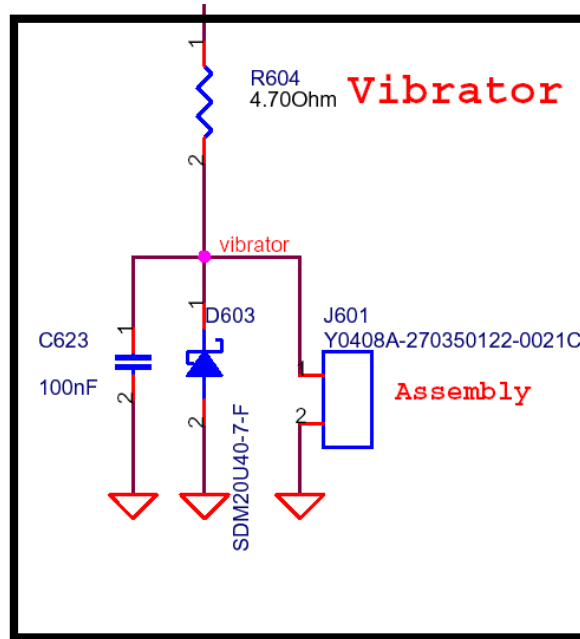
A fast start-up time of 4ms with minimal pop makes the TPA6202A1 ideal for wireless handsets.



### Terminal Functions

TERMINAL		I/O	DESCRIPTION
NAME	ZQV		
BYPASS	C1	I	Mid-supply voltage. Adding a bypass capacitor improves PSRR.
GND	B2	I	High-current ground
IN-	C3	I	Negative differential input
IN+	C2	I	Positive differential input
SHUTDOWN	B1	I	Shutdown terminal (active low logic)
V <sub>DD</sub>	A3	I	Supply voltage terminal
V <sub>O+</sub>	B3	O	Positive BTL output
V <sub>O-</sub>	A1	O	Negative BTL output
Thermal Pad	N/A		Connect to ground. Thermal pad must be soldered down in all applications to properly secure device on the PCB.

### 3.14 Vibrator Interface

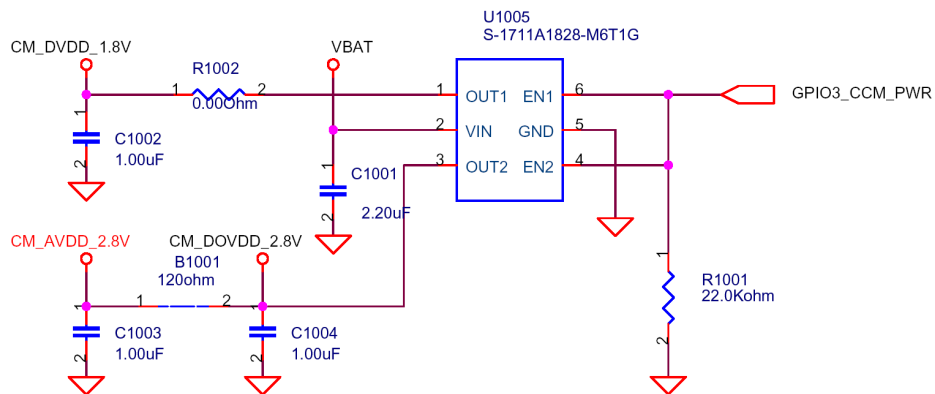


**Figure.3-14-1Vibrator Interface**

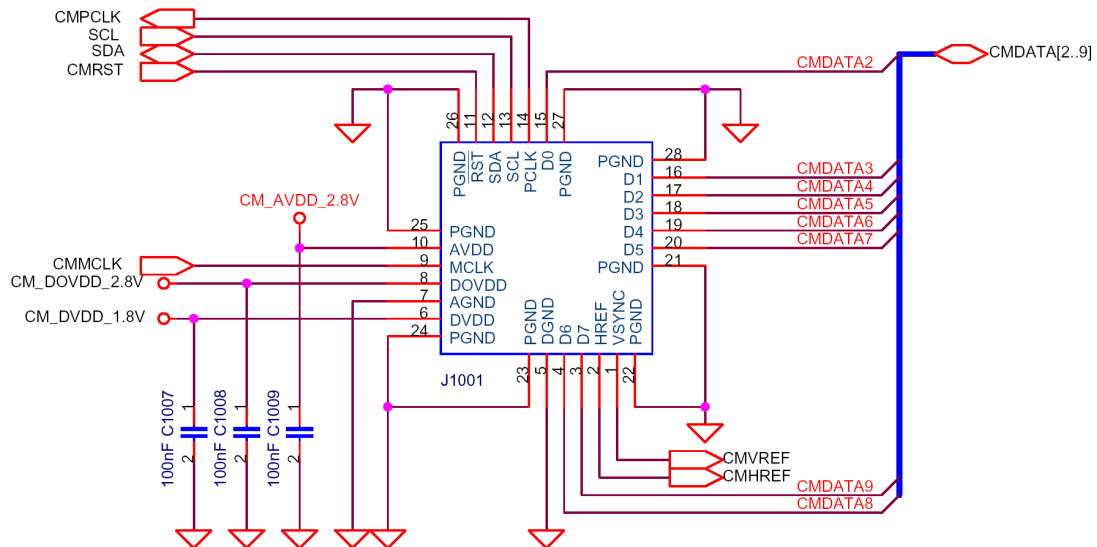
This handset has Vibrator operation. Control signal is controlled by MT6226 with PMIC

### 3.15 Camera Interface

## Camera LDO



## Camera Module



### Figure.3-15-1 Camera Interface

### 3.15.1 Pin Description

Pin Number	Name	Pin Type	Function/Description
1	VSYNC	Output	Vertical sync output
2	HREF	Output	HREF output
3	Y7	Output	YUV video component output bit[7]
4	Y6	Output	YUV video component output bit[6]
5	DGND	Power	Power ground
6	DVDD	Power	Digital power supply (+1.8VDC $\pm$ 10%)
7	AGND	Power	Power ground
8	DOVDD	Power	I/O Power Supply(+2.45 to 3.0 VDC)
9	MCLK	Input	Crystal clock input (Default 24MHz)
10	AVDD	Power	Analog power supply (+2.45 to 3.0VDC)
11	RESET	Function (default = 1)	Clears all registers and resets them to their default values.
12	SDA	I/O	Serial interface data I/O
13	SCL	Input	Serial interface clock input
14	PCLK	Output	Pixel clock output
15	Y0	Output	YUV video component output bit[0]
16	Y1	Output	YUV video component output bit[1]
17	Y2	Output	YUV video component output bit[2]
18	Y3	Output	YUV video component output bit[3]
19	Y4	Output	YUV video component output bit[4]
20	Y5	Output	YUV video component output bit[5]

## 4. Trouble Shooting

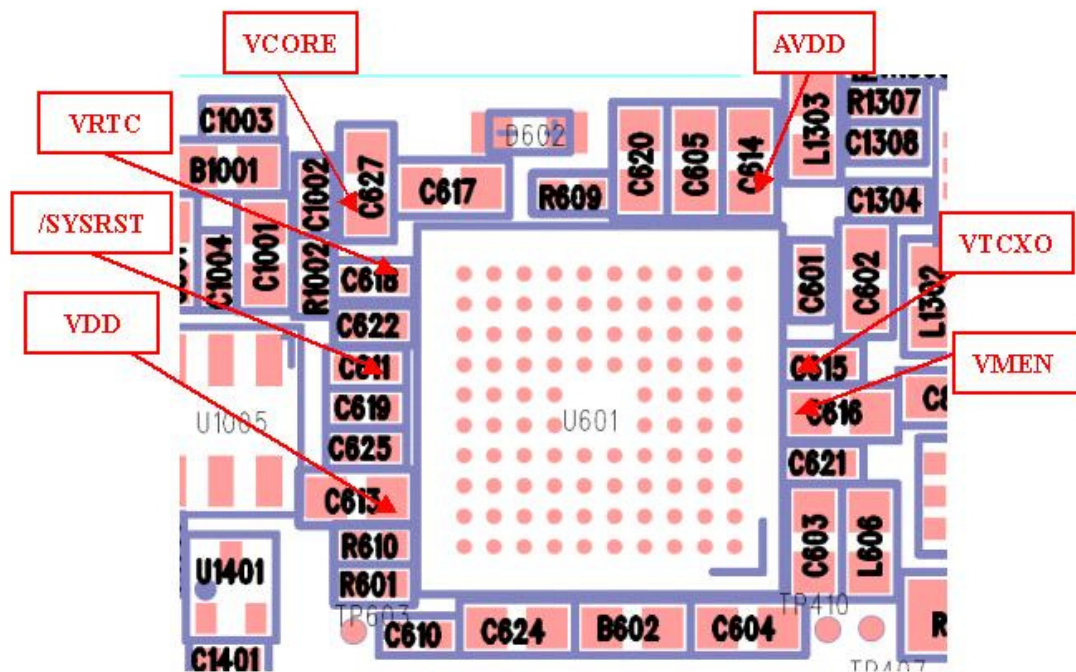
### 4.1 Power On Trouble

#### 4.1.1 Test Point

Check Points:

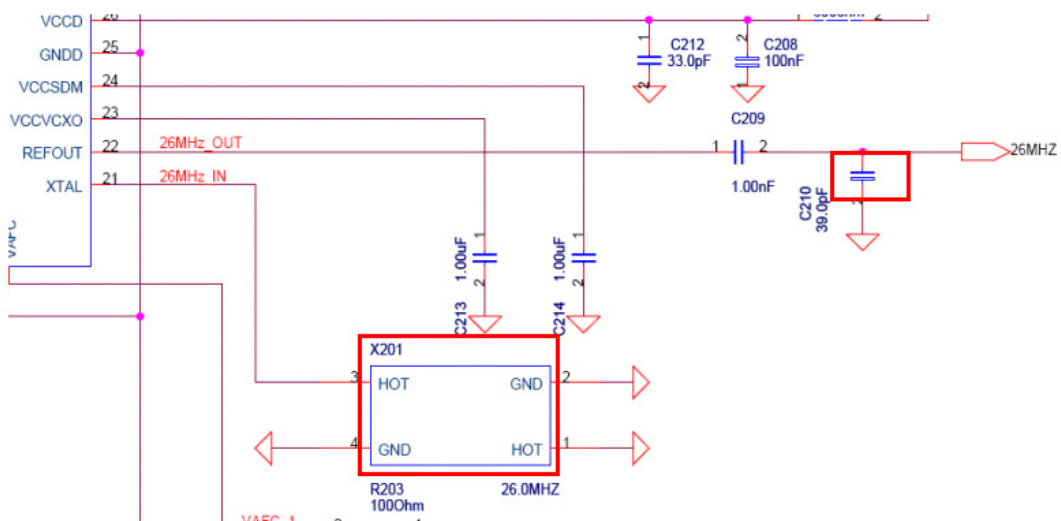
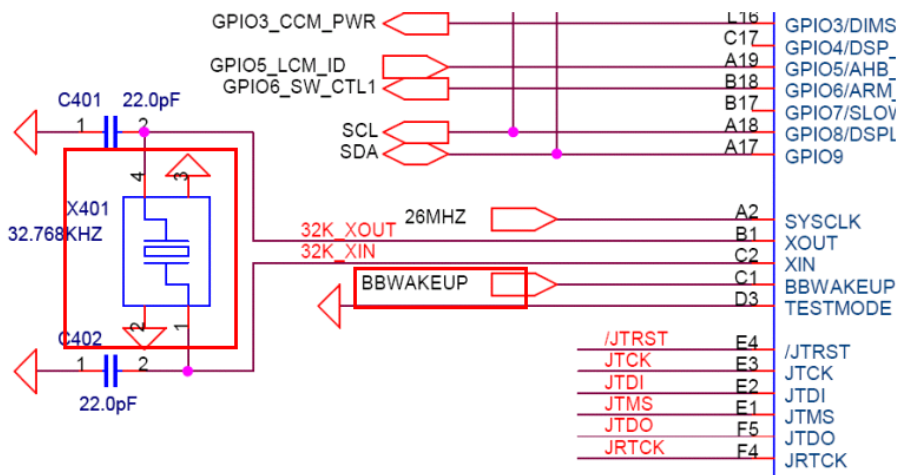
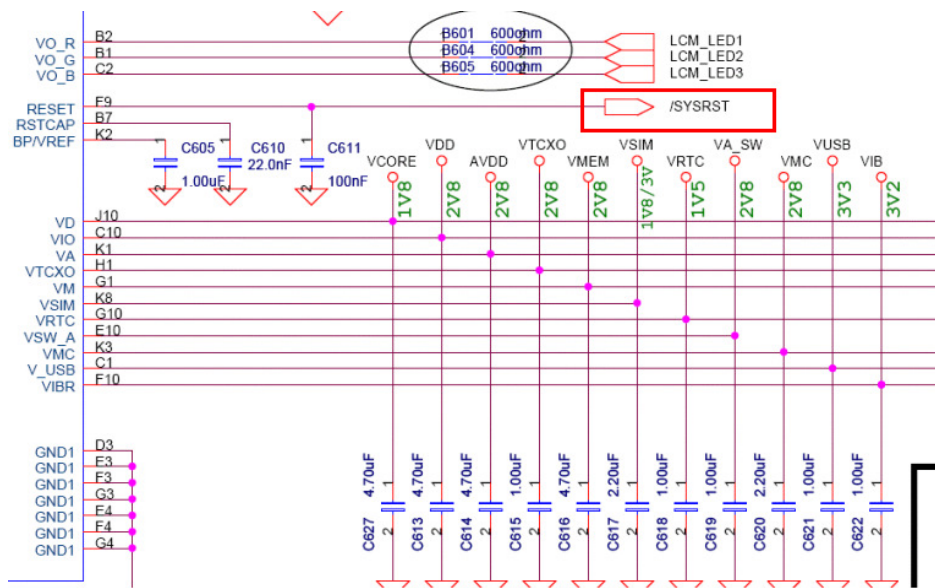
- Battery Voltage(Need to over 3.35V)
- Power-On key detection(PWRON signal)
- Outputs of LDOs U601
- Oscillate frequency of X401 and X201

	Voltage	PART
VDD	2.8V	C613
VMEM	1.8V	C616
AVDD	2.8V	C614
VCORE	1.8V	C627
VCTXO	2.8V	C615
VRTC	1.5V	C618



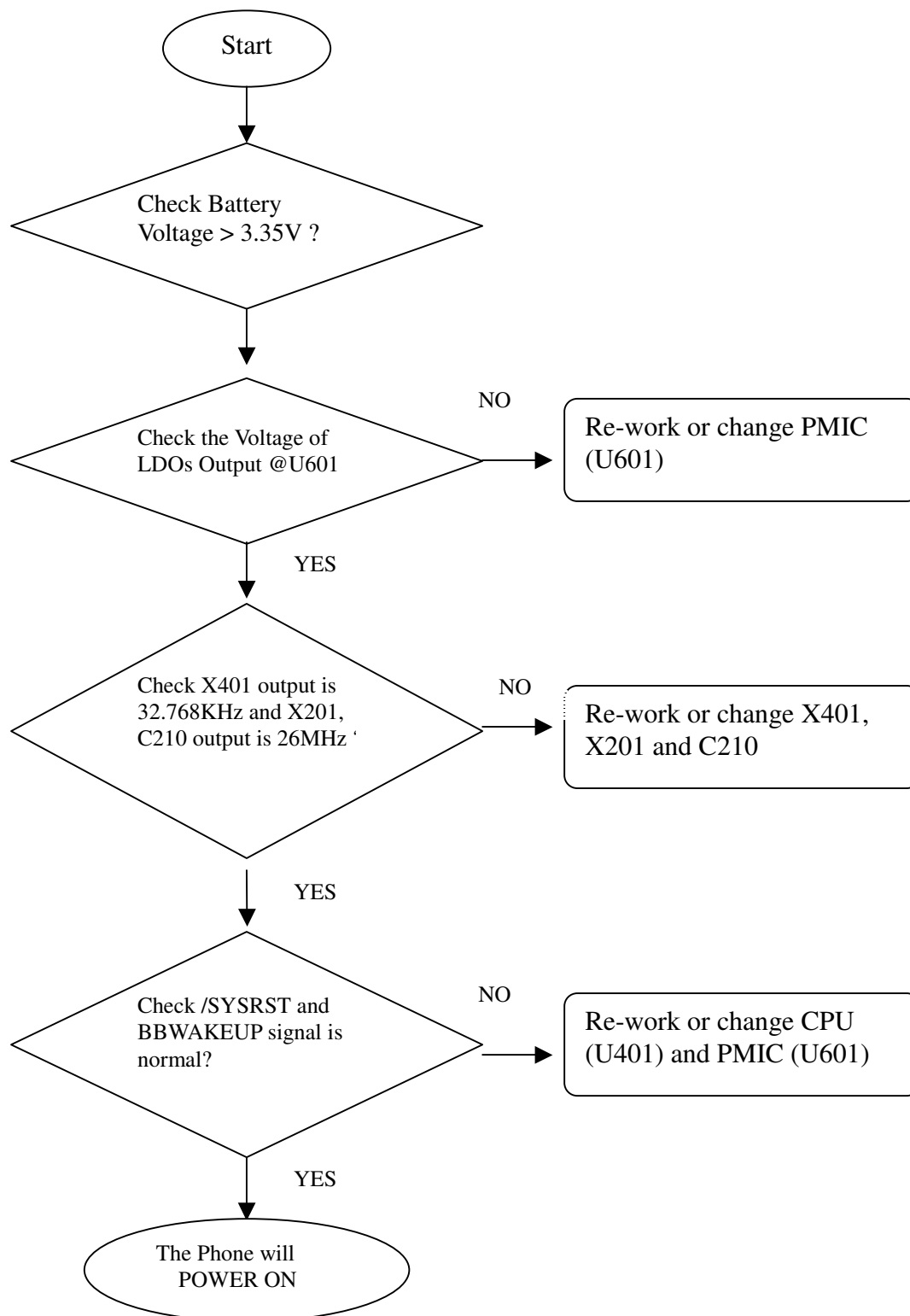


## 4.1.2 Circuit Diagram

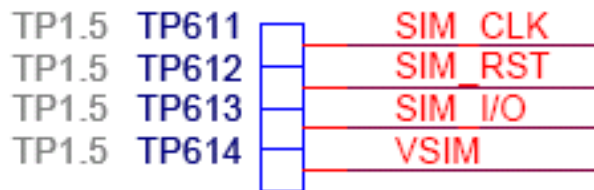




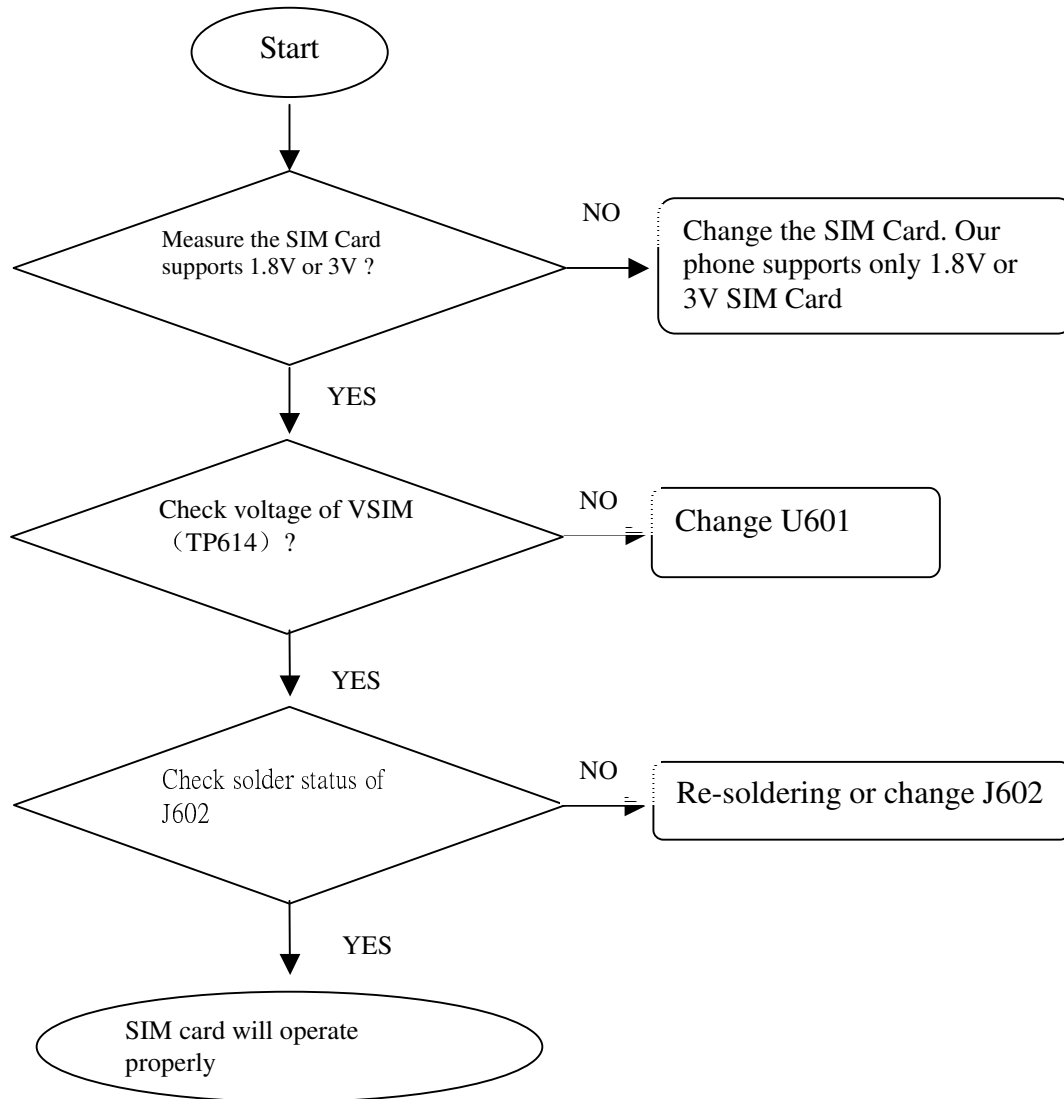
### 4.1.3 Checking Flow



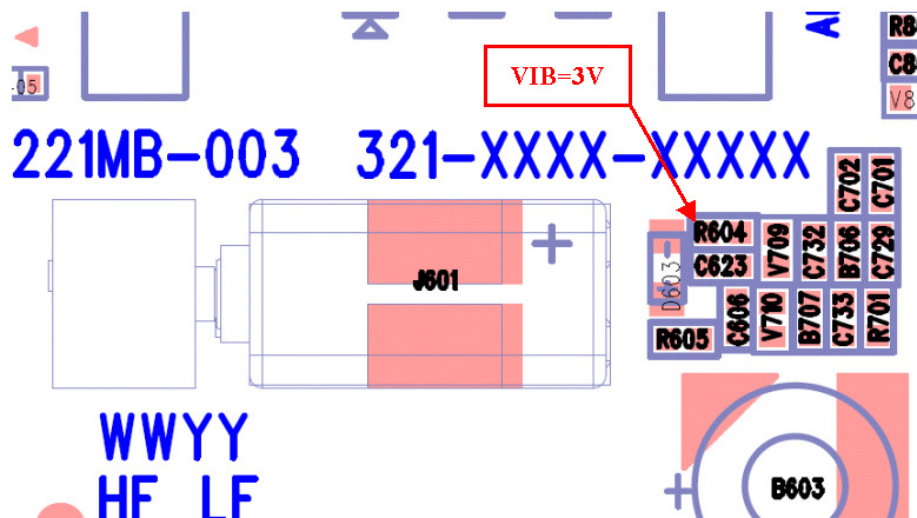
### 4.2.1 Test Point

[illegible]

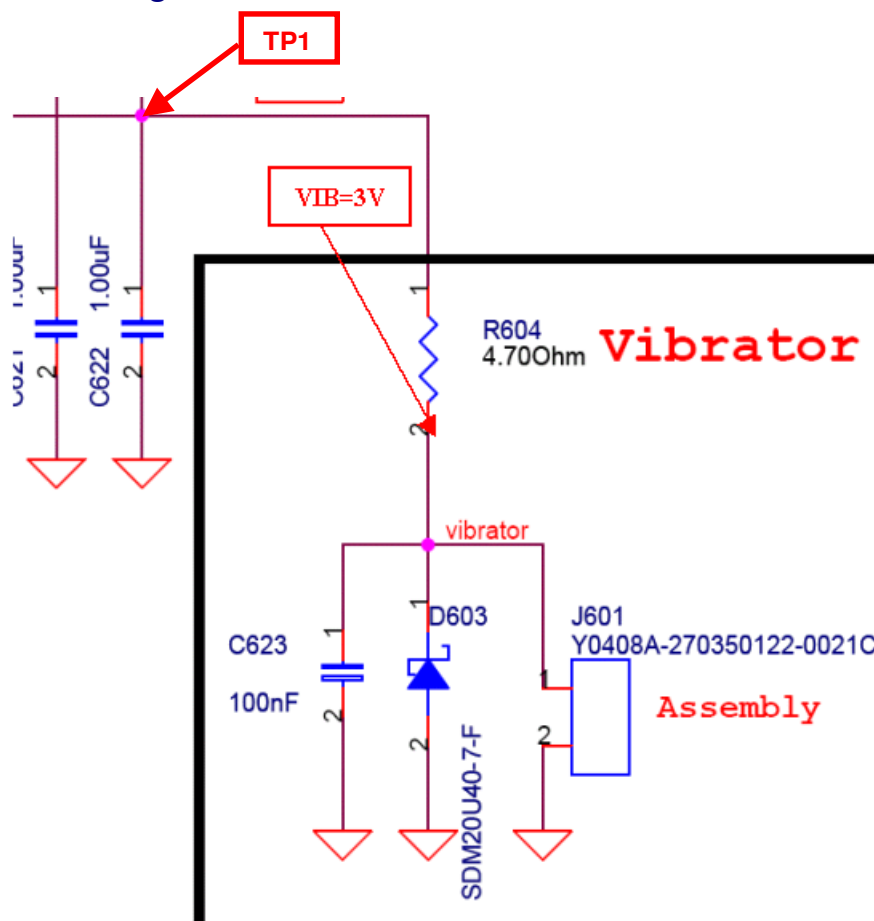
### 4.2.3 Checking Flow



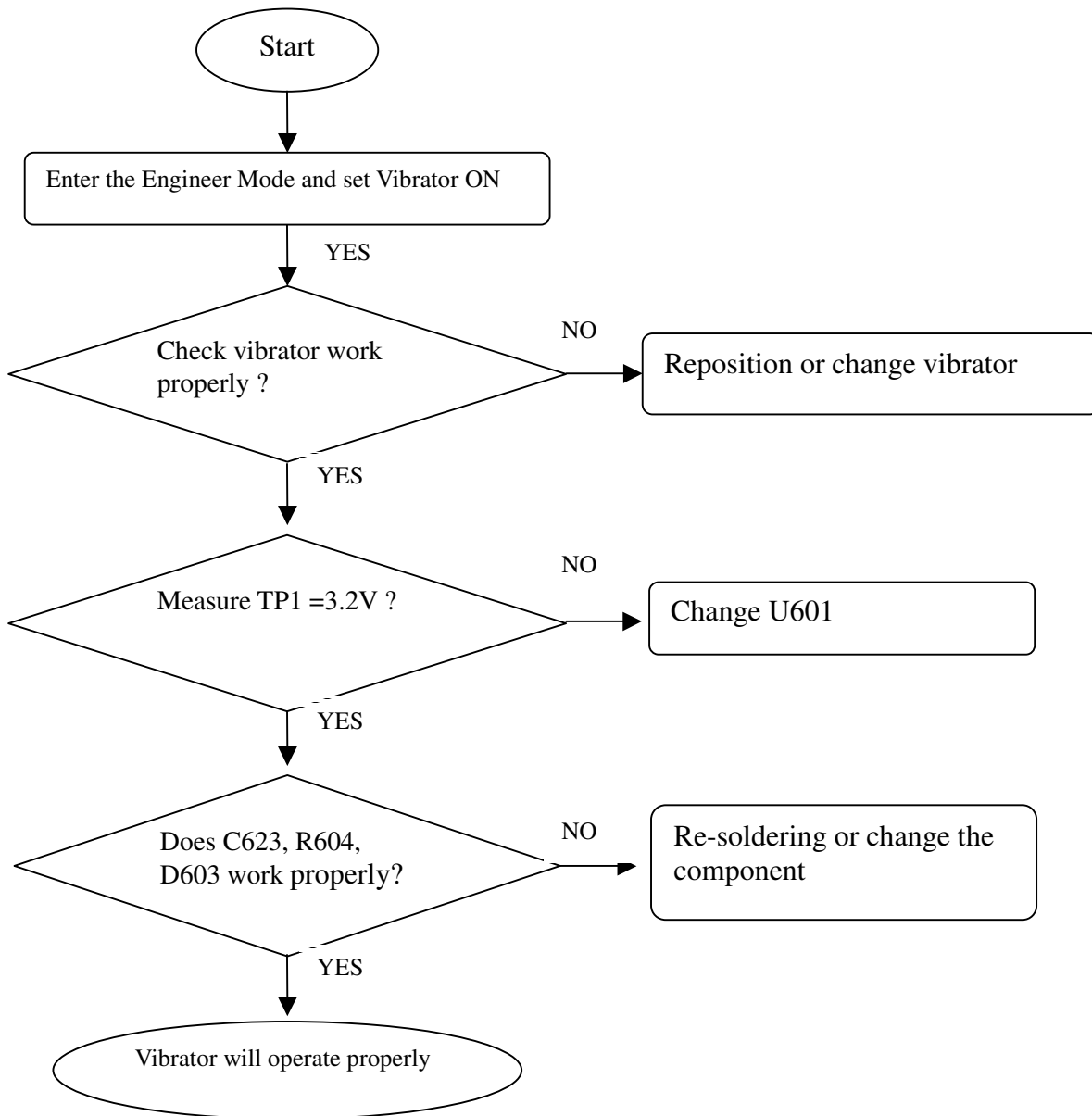
### 4.3.1 Test Point



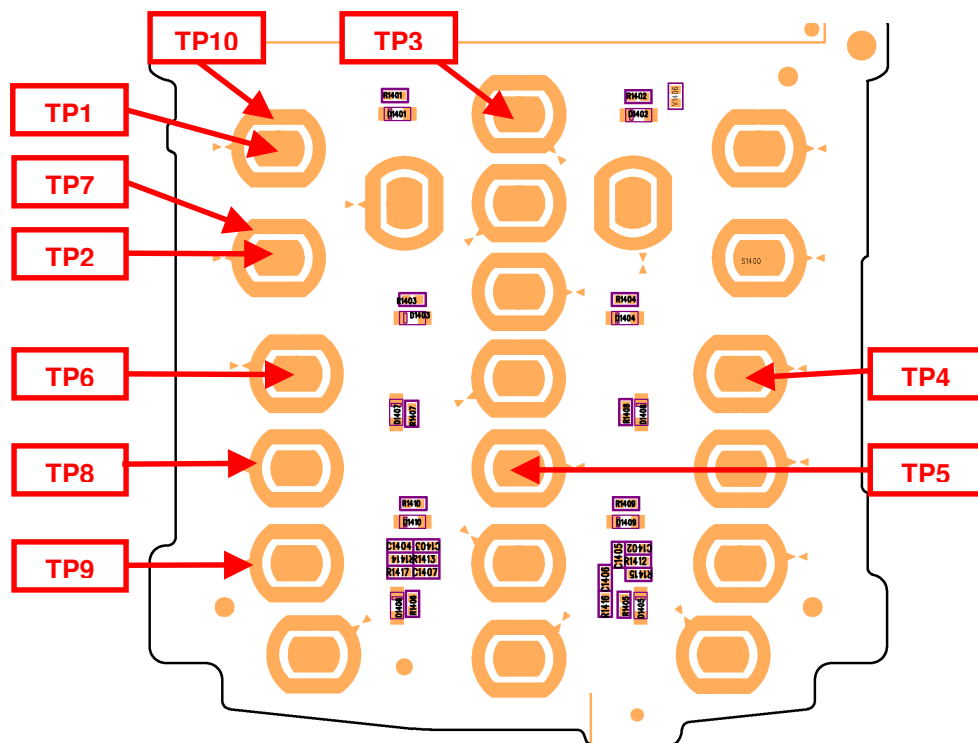
### 4.3.2 Circuit Diagram



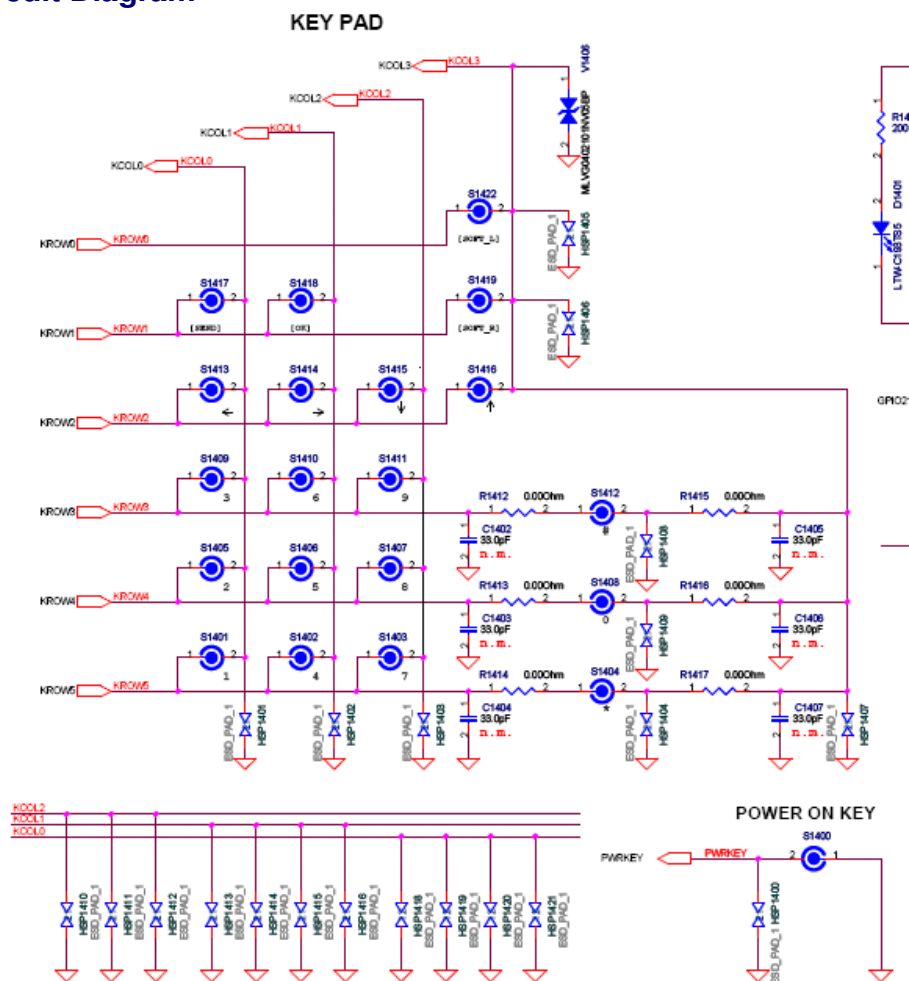
### 4.3.3 Checking Flow



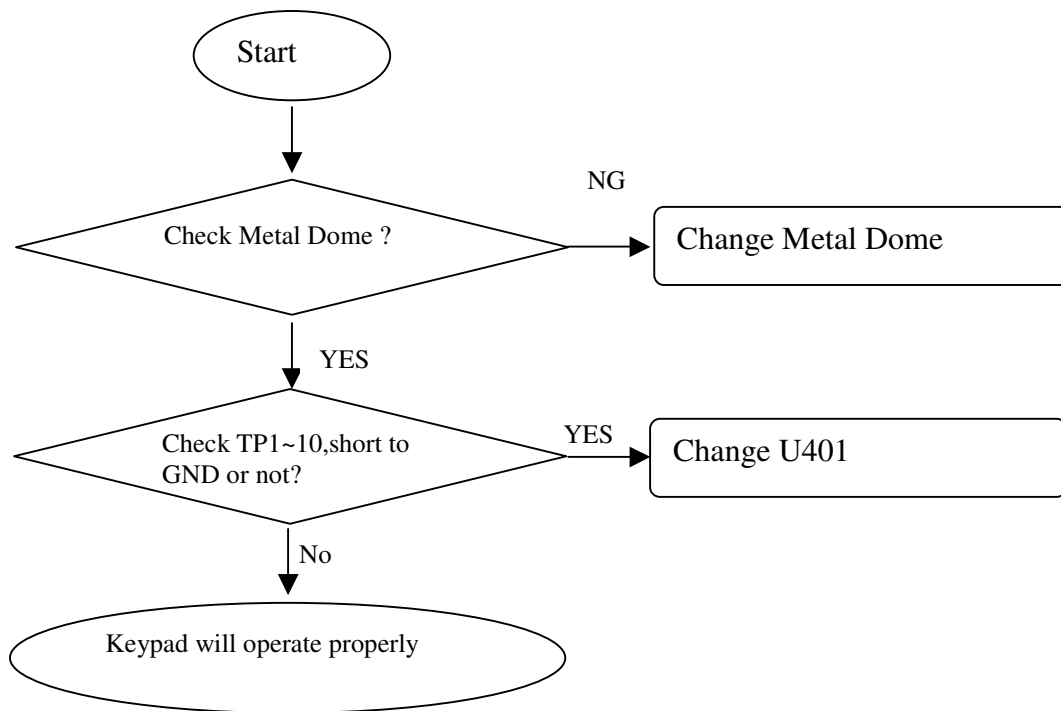
#### 4.4.1 Test Point



#### 4.4.2 Circuit Diagram

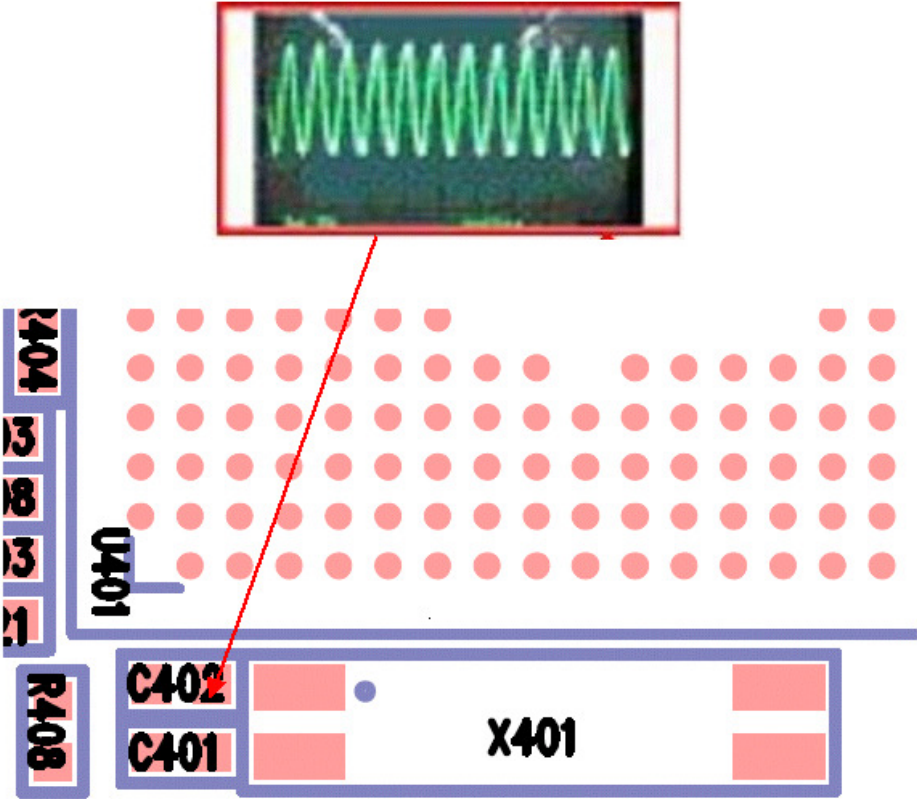


#### 4.4.3 Checking Flow

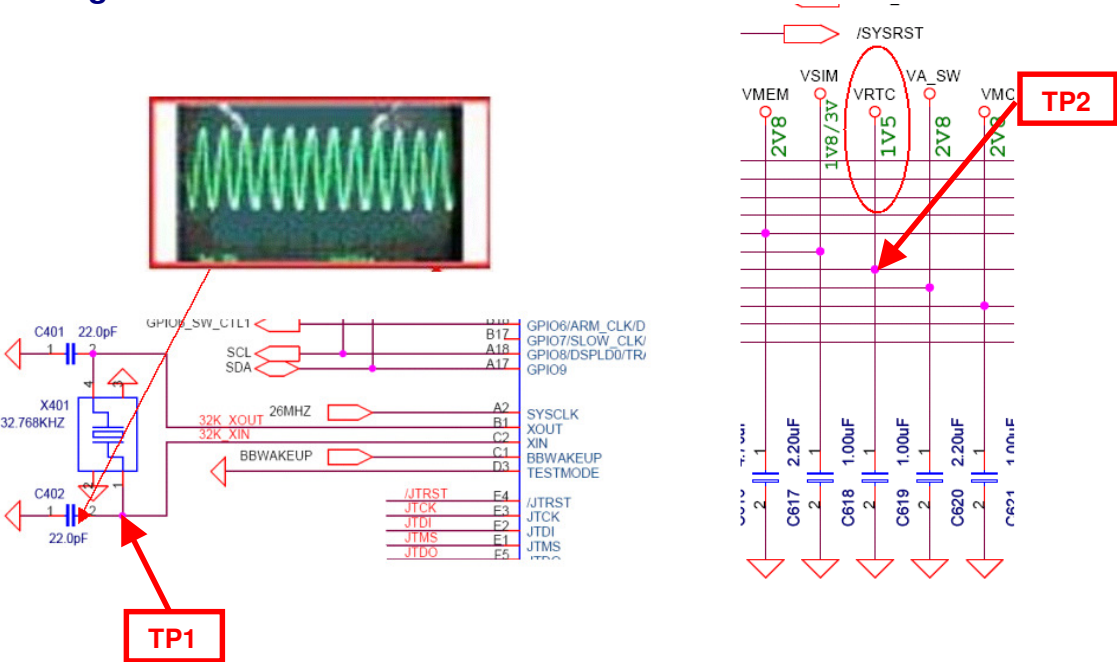


4.5 RTC Trouble

4.5.1 Test Point

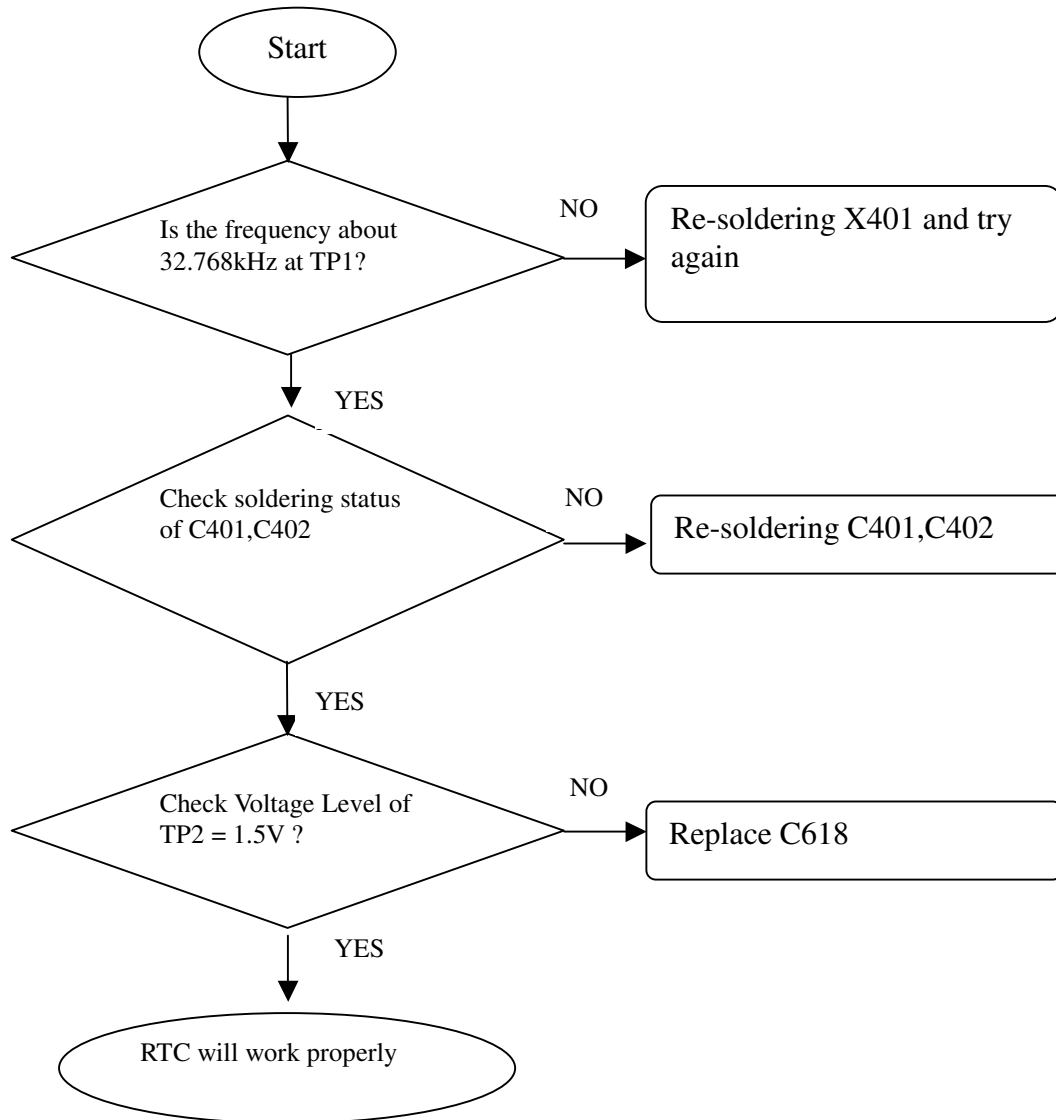


4.5.2 Circuit Diagram





### 4.5.3 Checking Flow

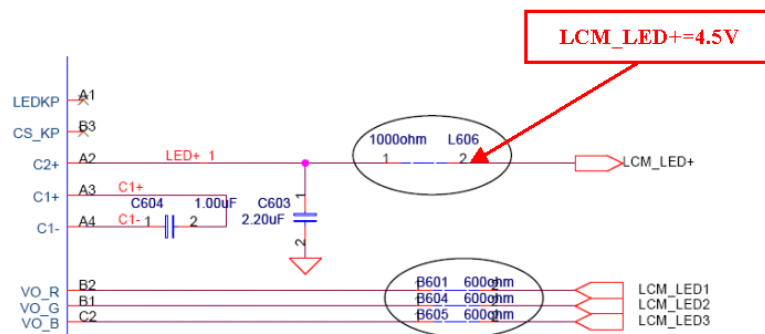


## 4.6 LCM Backlight Trouble

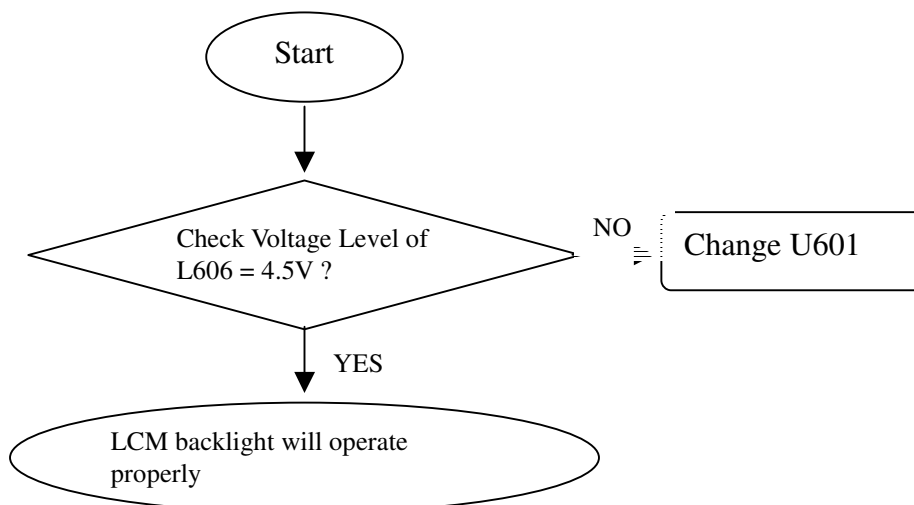
### 4.6.1 Test Point



### 4.6.2 Circuit Diagram

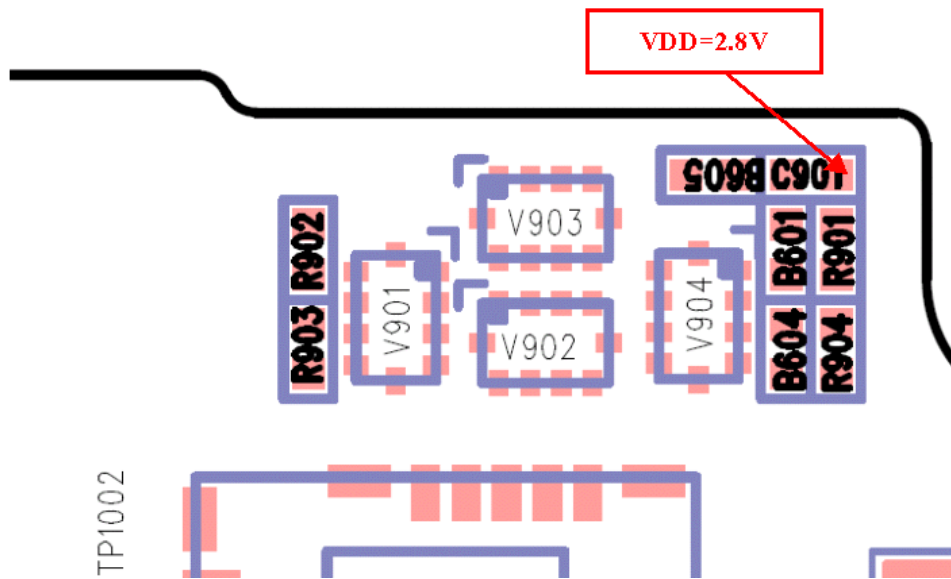


### 4.6.3 Checking Flow

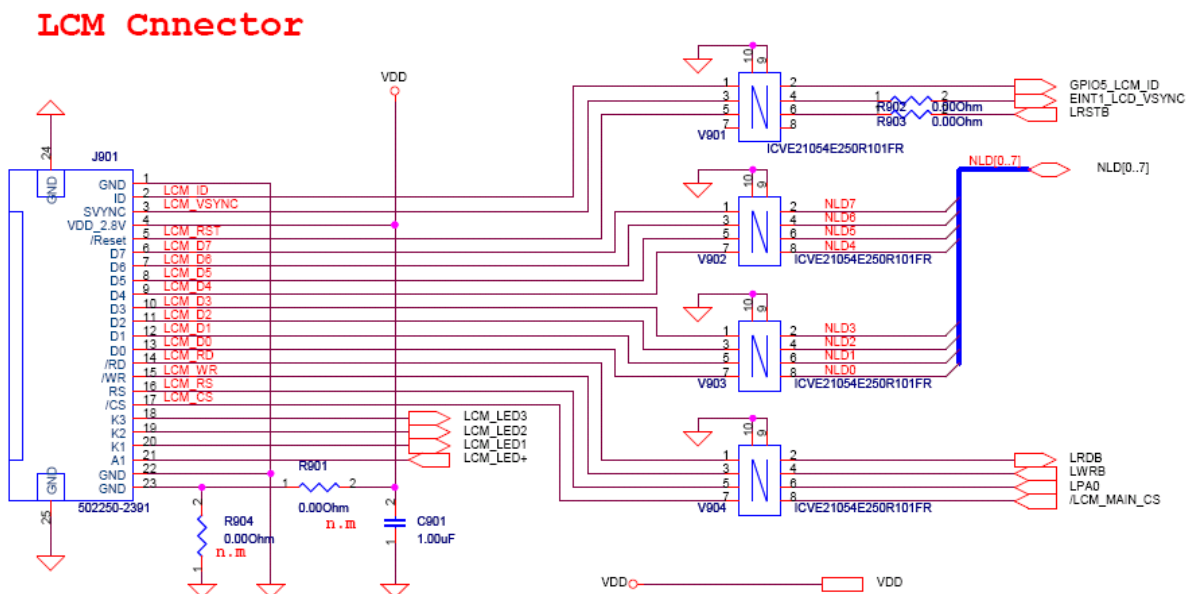


## 4.7 LCM Trouble

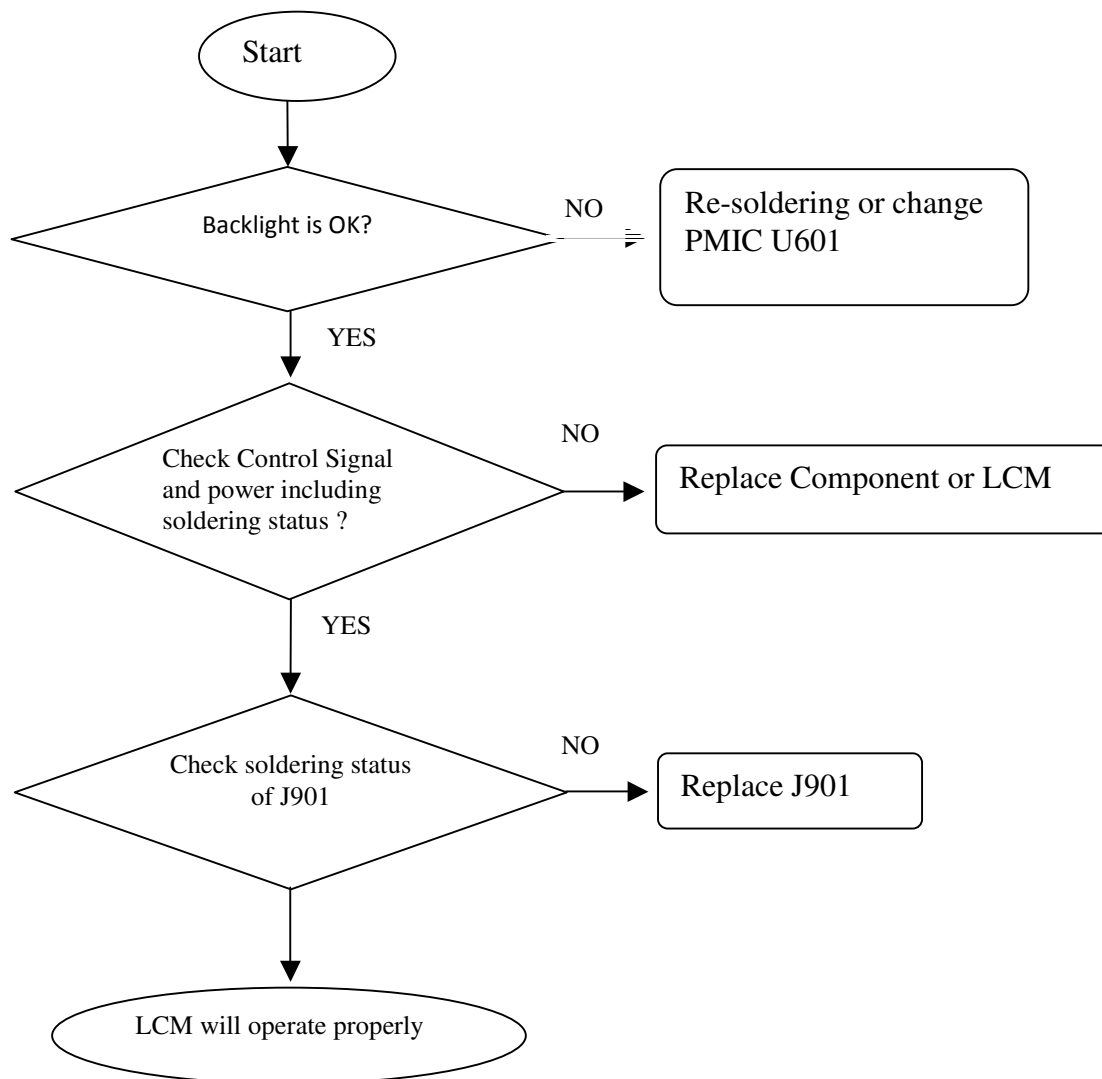
### 4.7.1 Test Point



### 4.7.2 Circuit Diagram

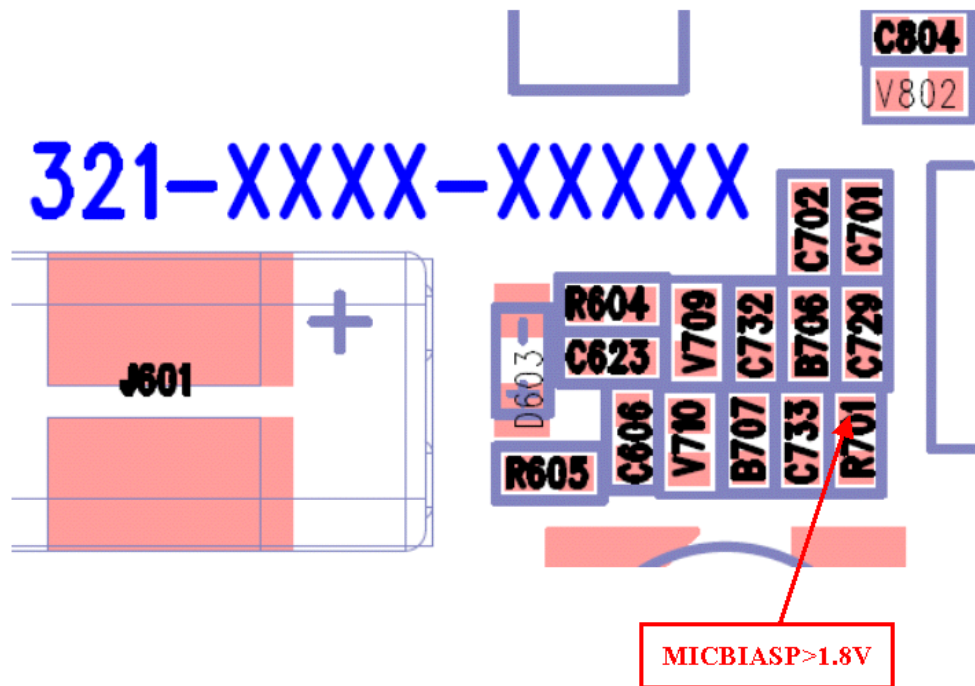


### 4.7.3 Checking Flow

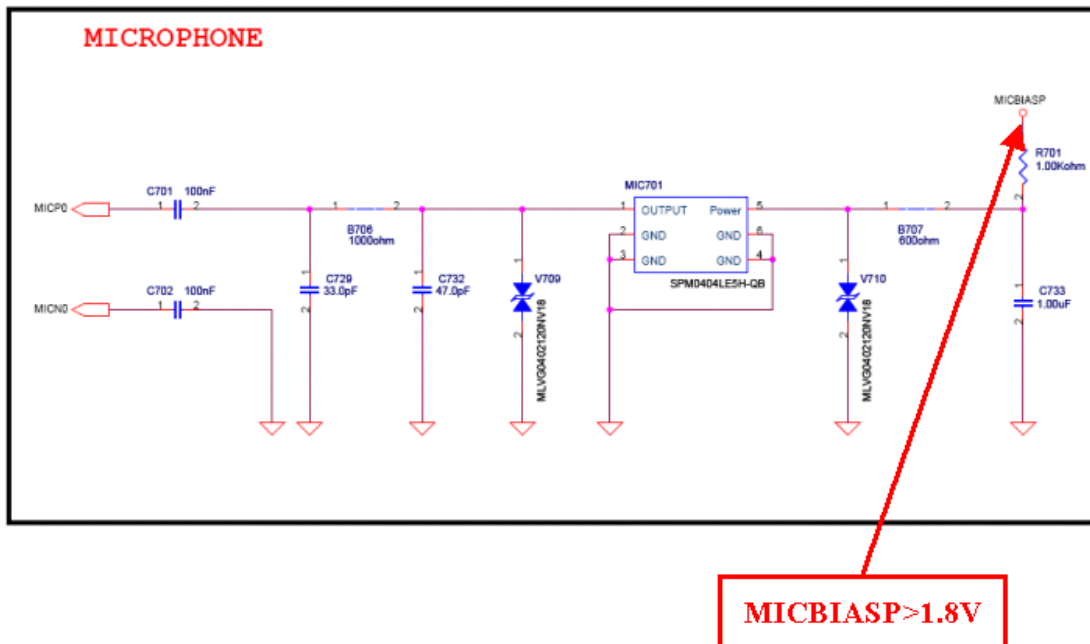


## 4.8 Microphone Trouble

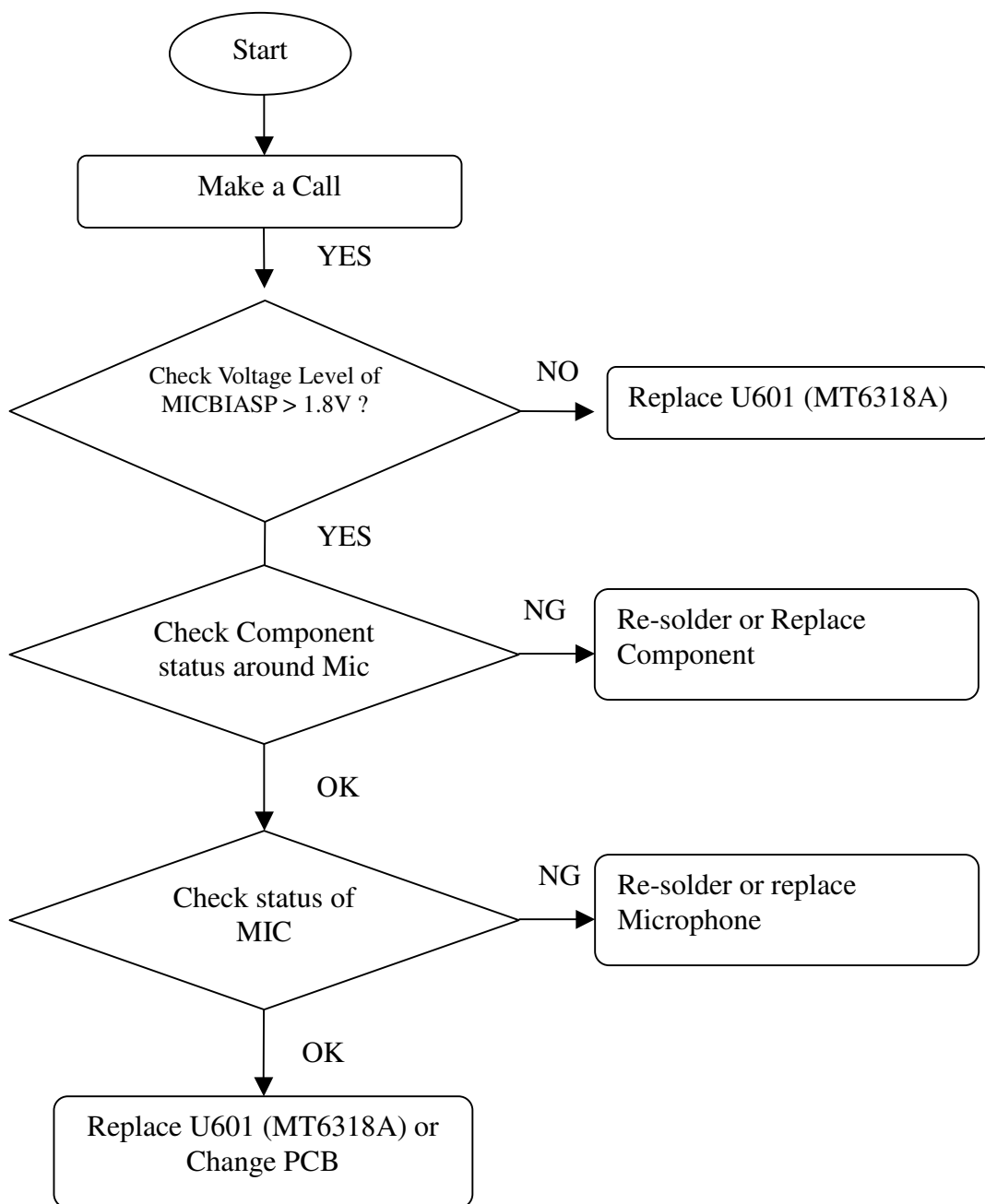
### 4.8.1 Test Point



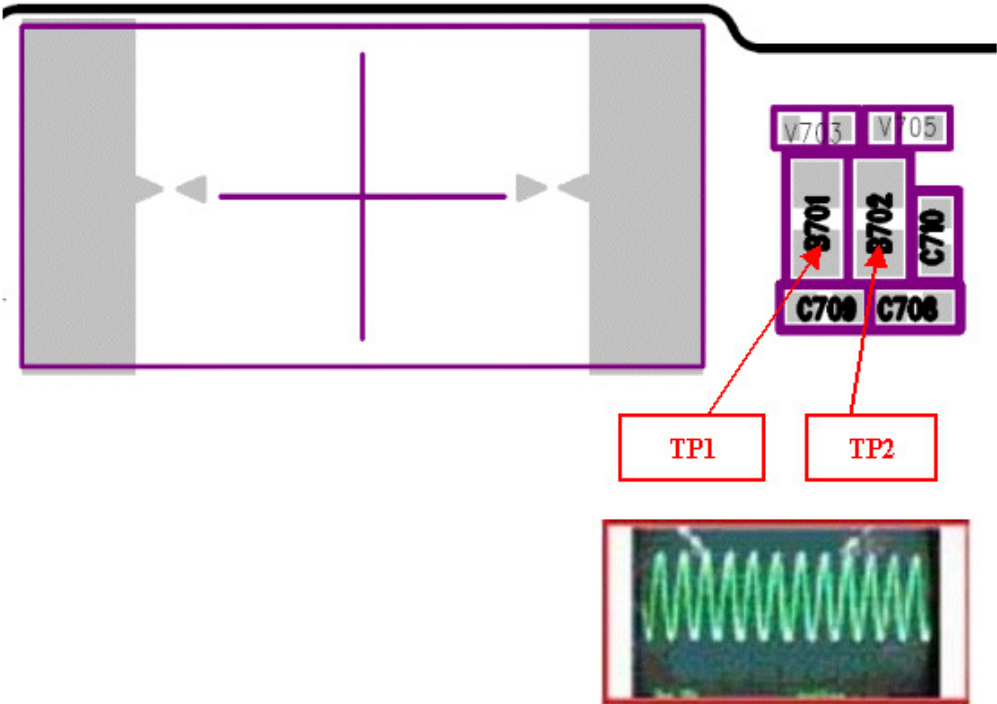
### 4.8.2 Circuit Diagram



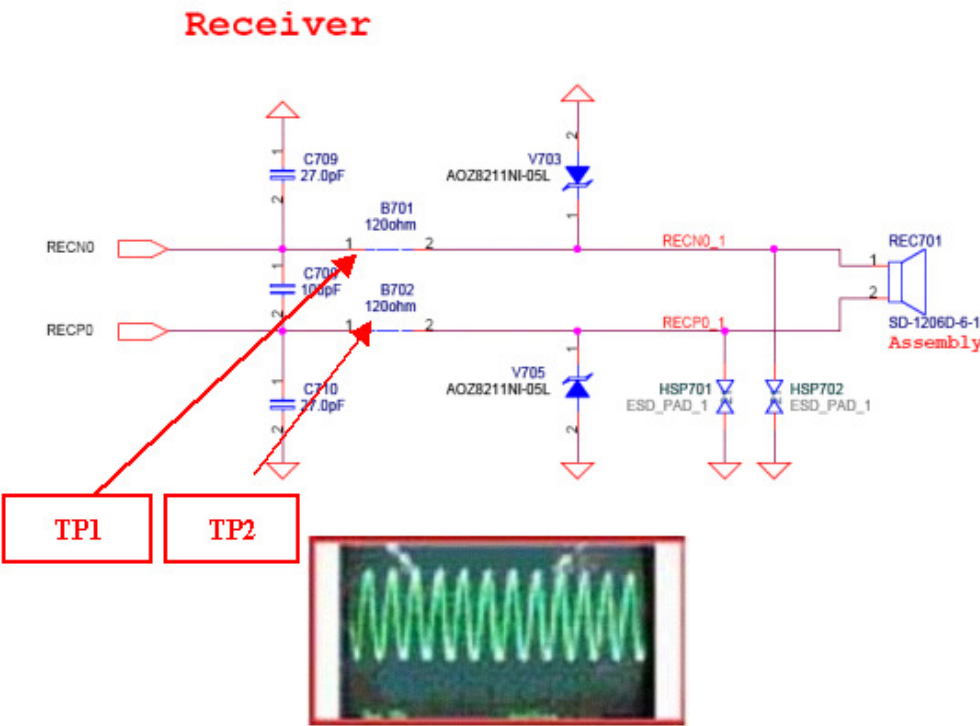
### 4.8.3 Checking Flow



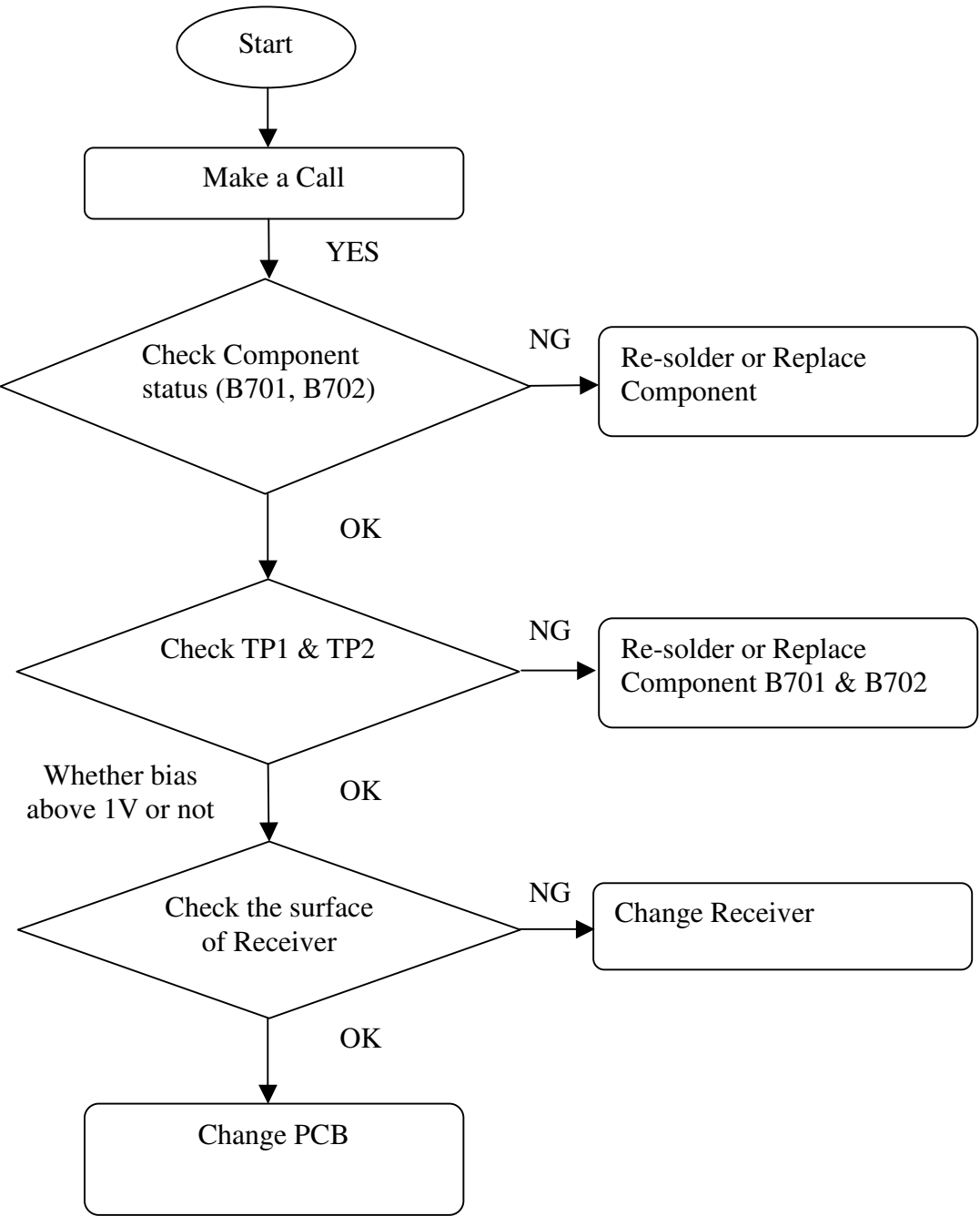
4.9 Receiver Trouble  
4.9.1 Test Point



4.9.2 Circuit Diagram



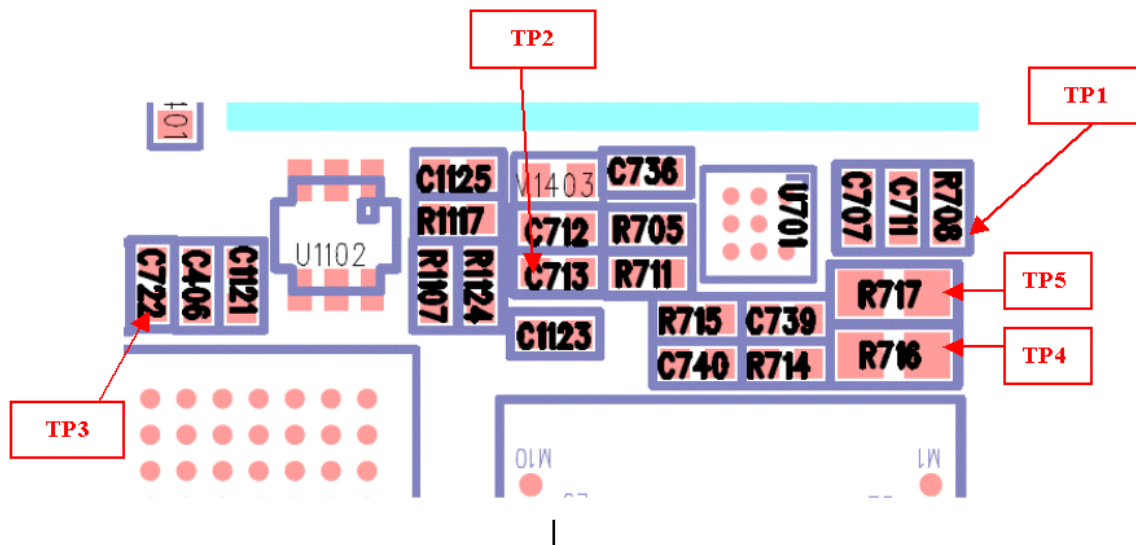
4.9.3 Checking Flow



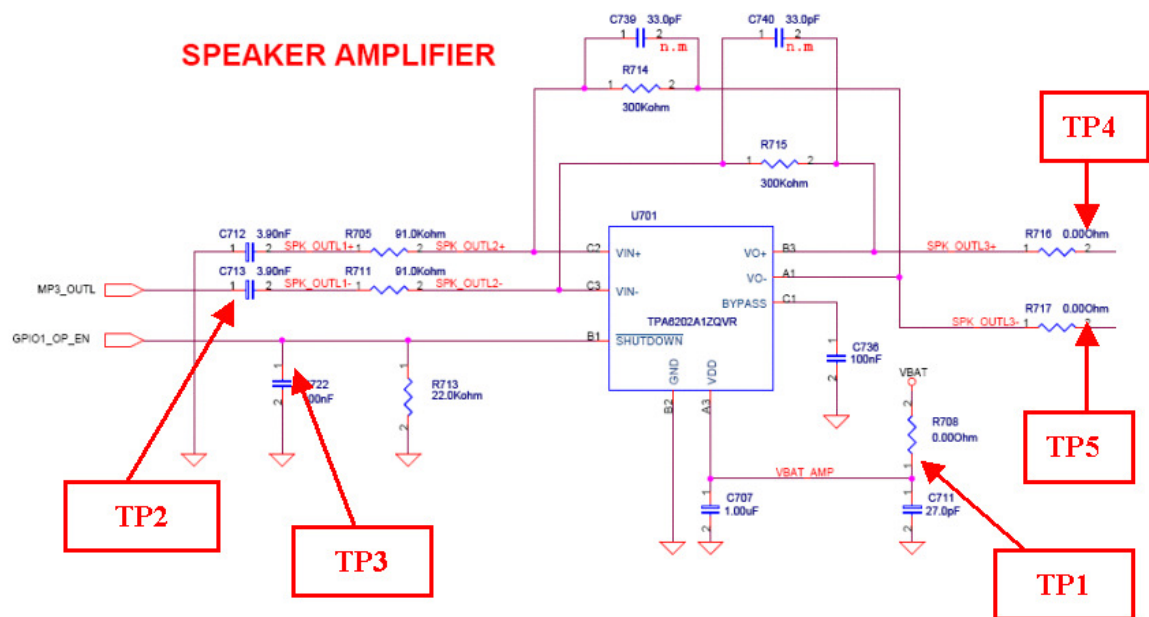


## 4.10 Speaker Trouble

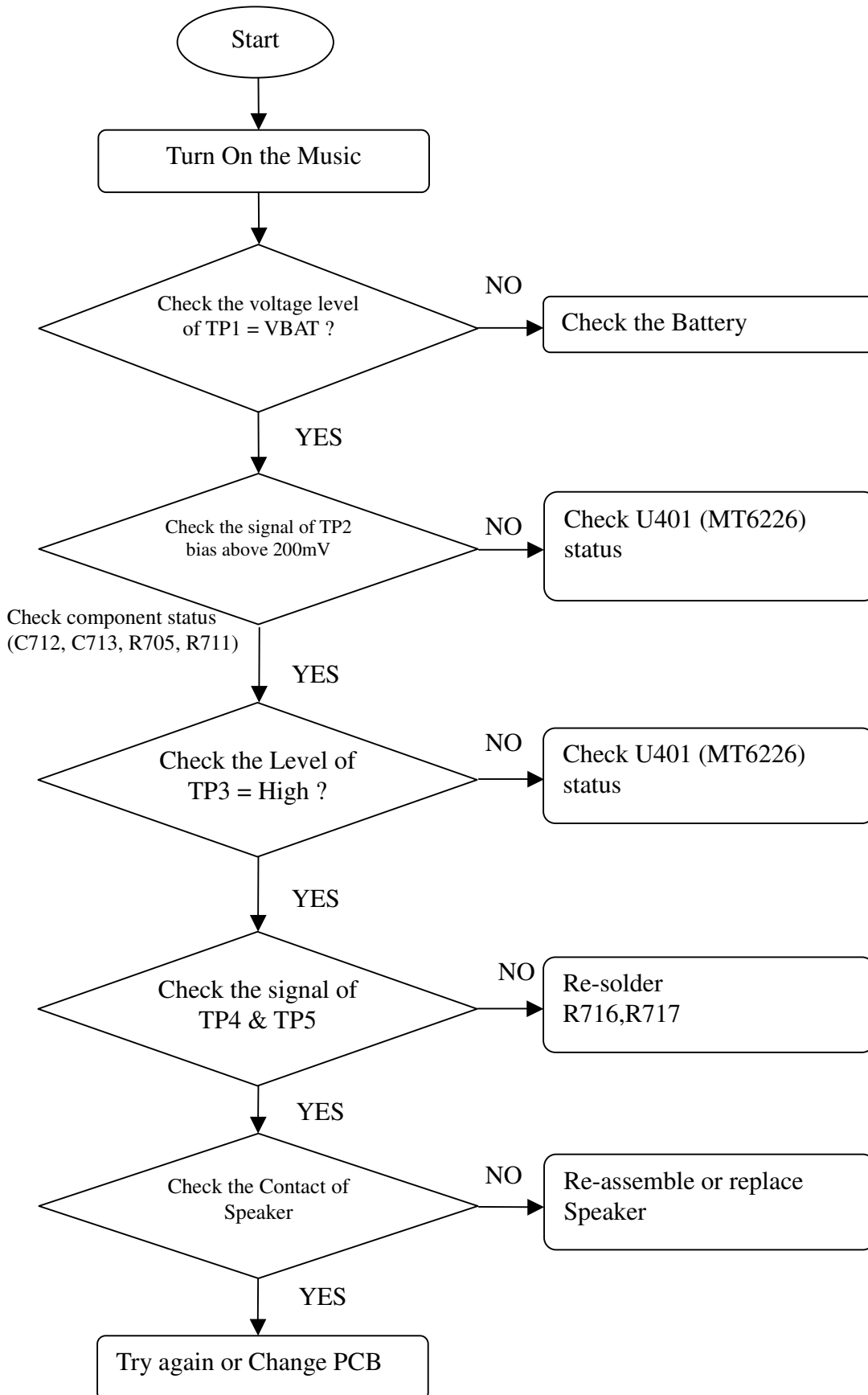
### 4.10.1 Test Point



### 4.10.2 Circuit Diagram

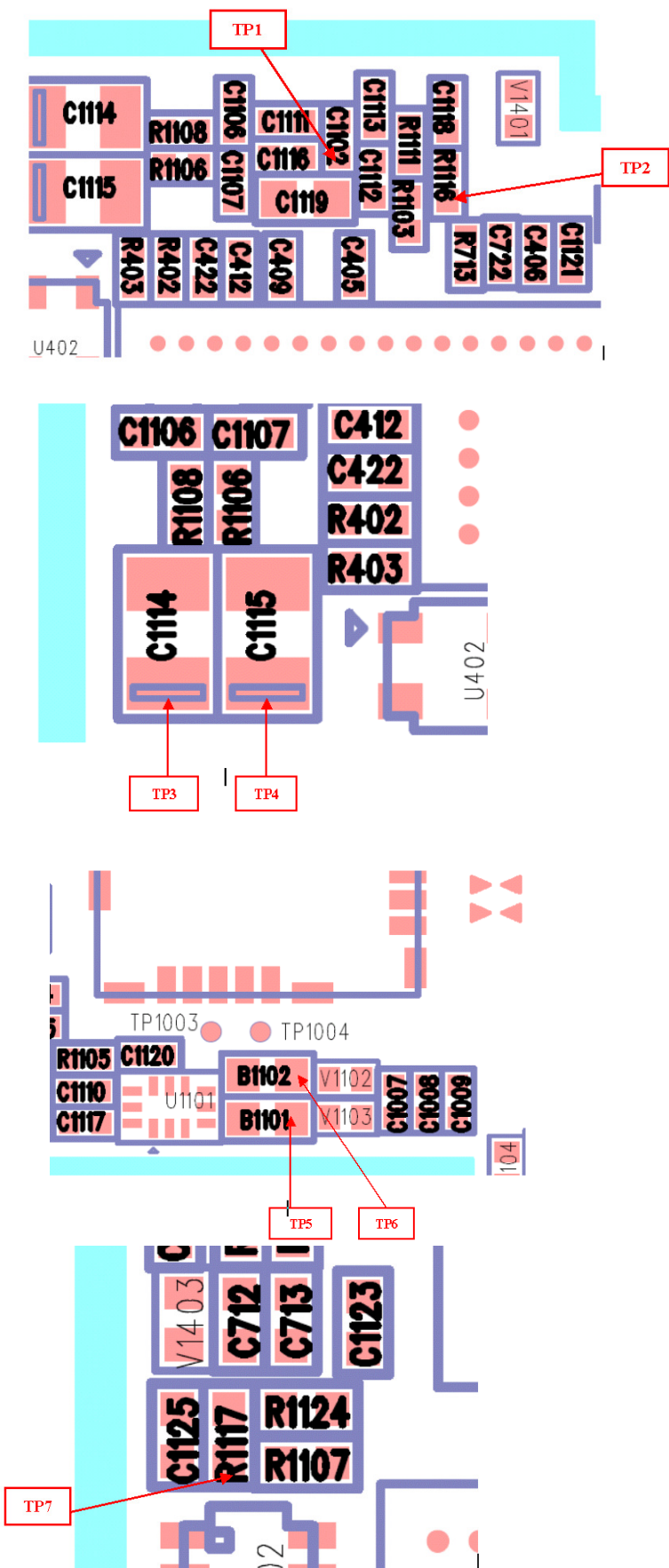


### 4.10.3 Checking Flow

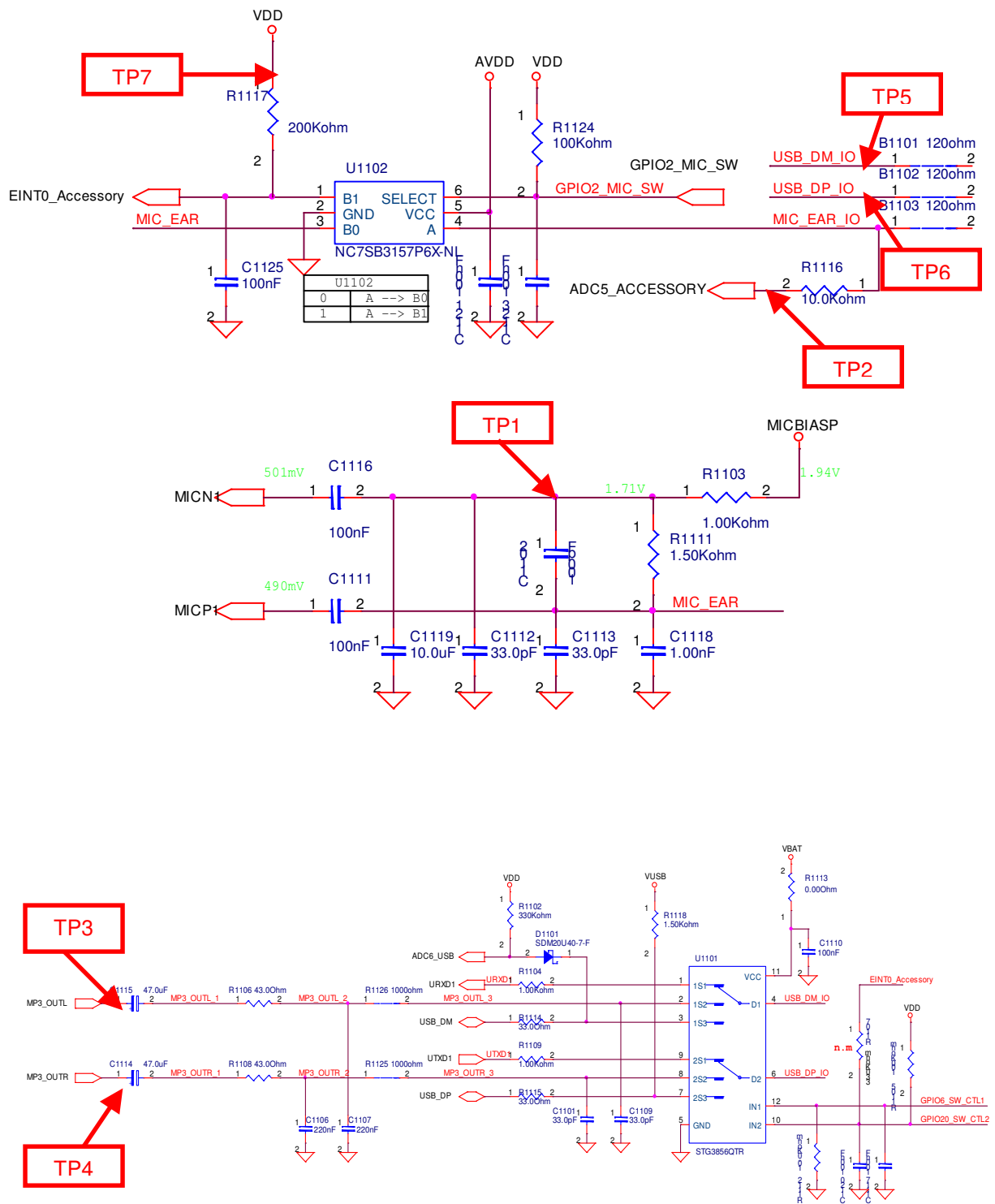


4.11 Headphone Trouble

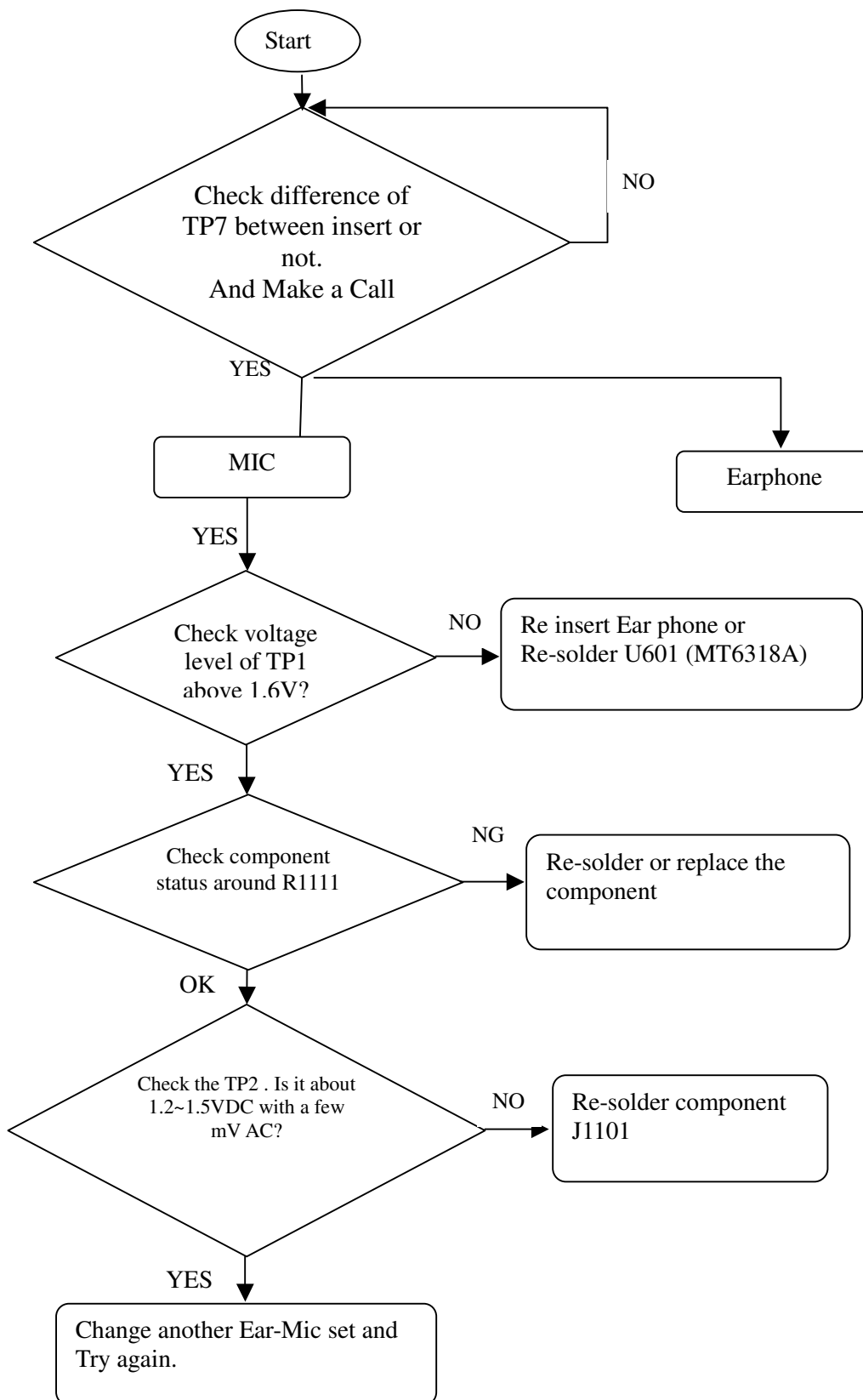
4.11.1 Test Point

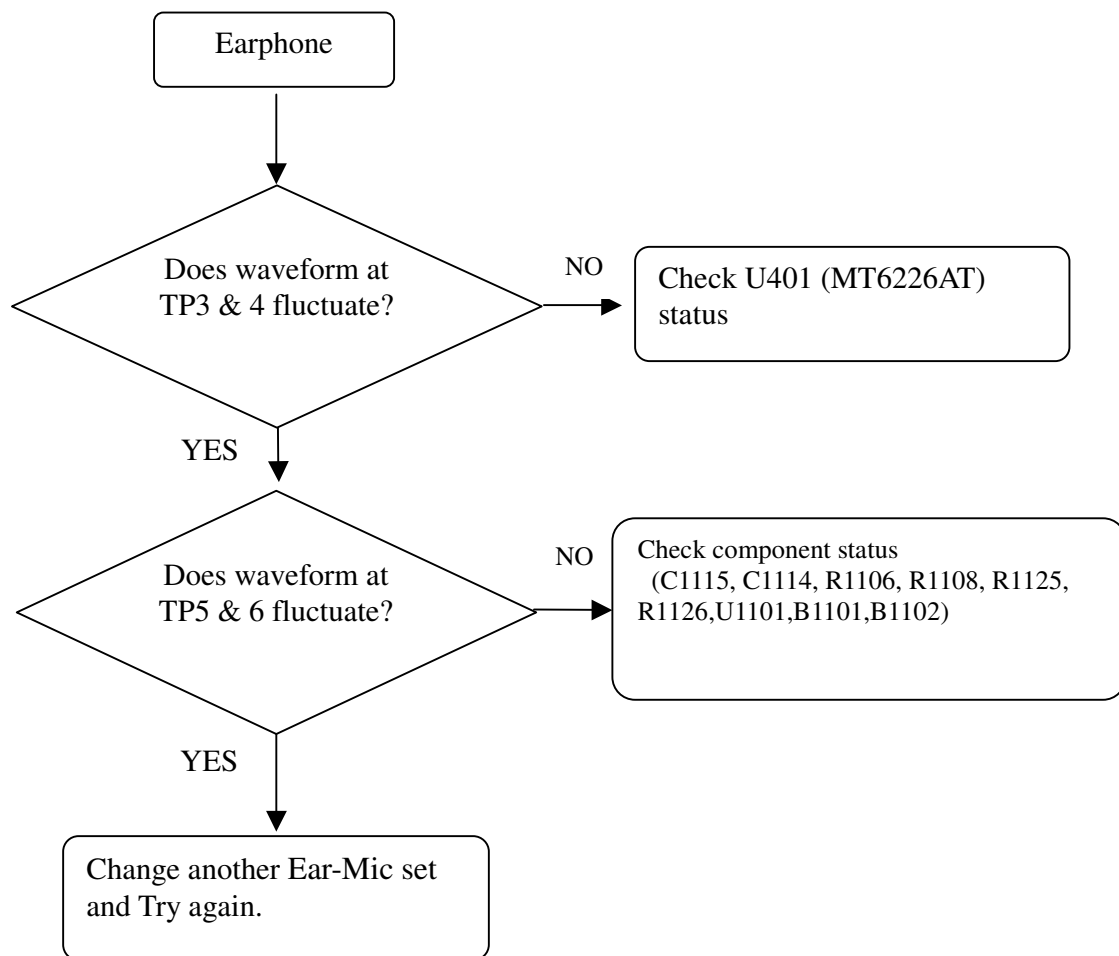


### 4.11.2 Circuit Diagram

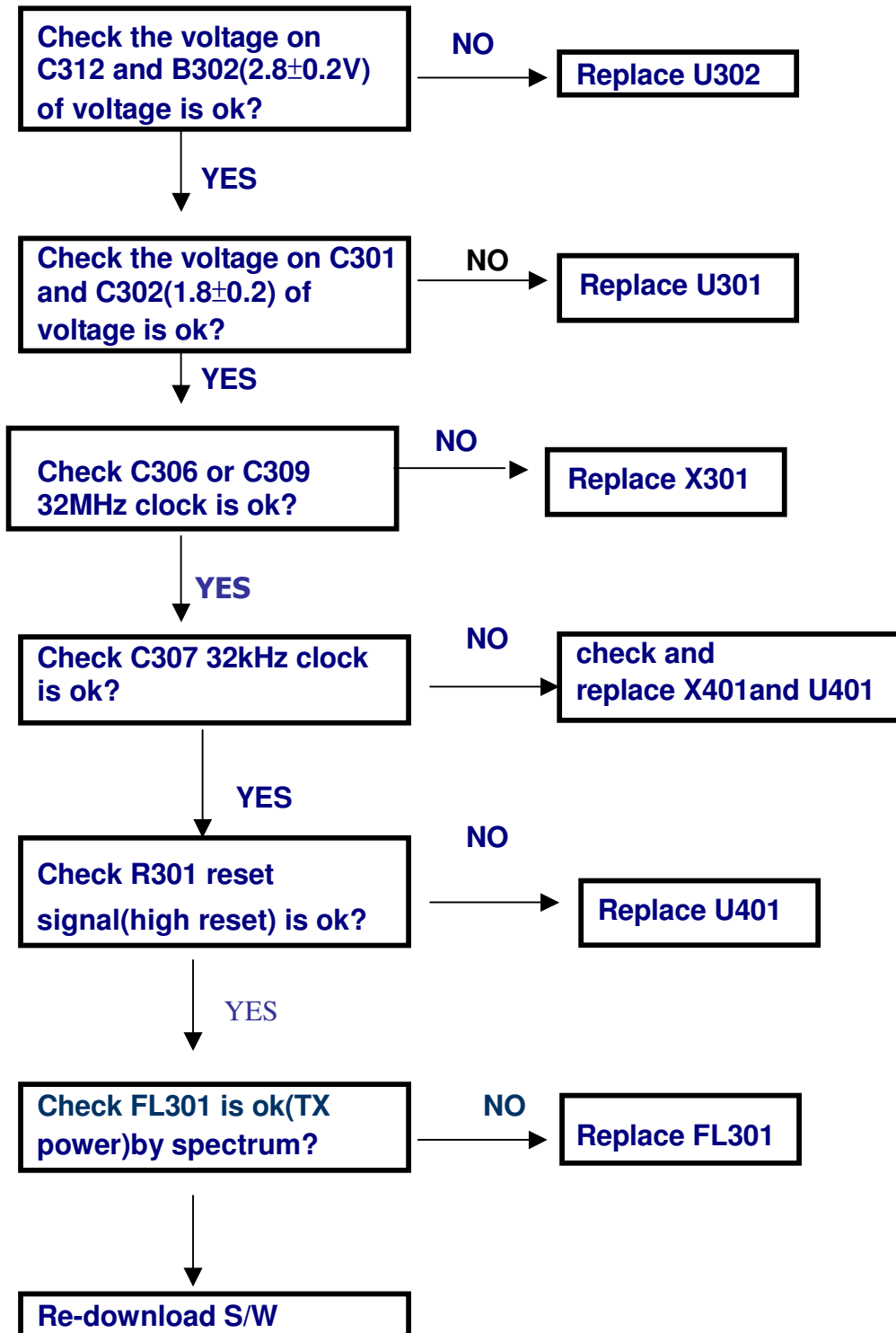


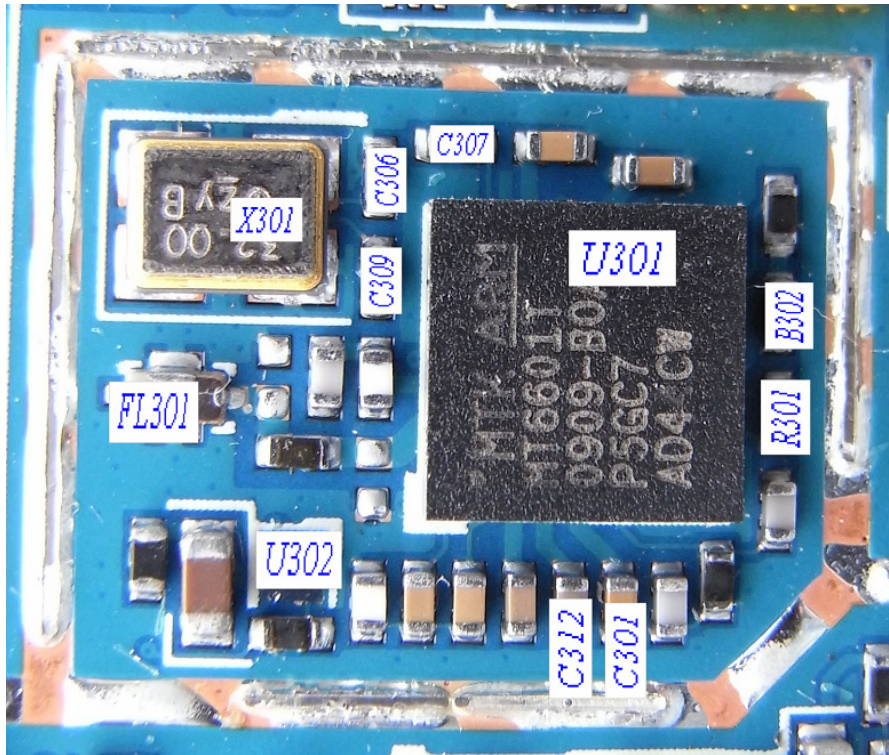
### 4.11.3 Checking Flow



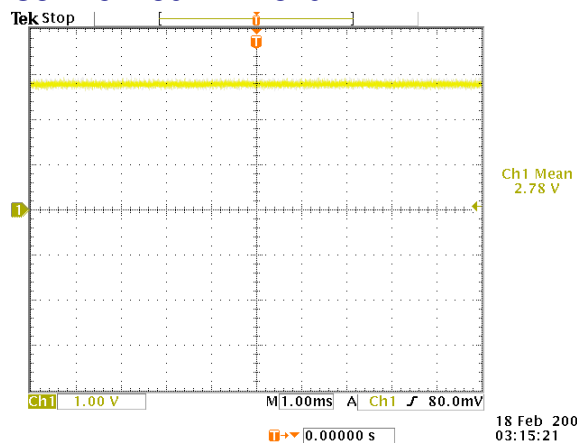


## 4.12 RF trouble shooting Bluetooth (MT6601)

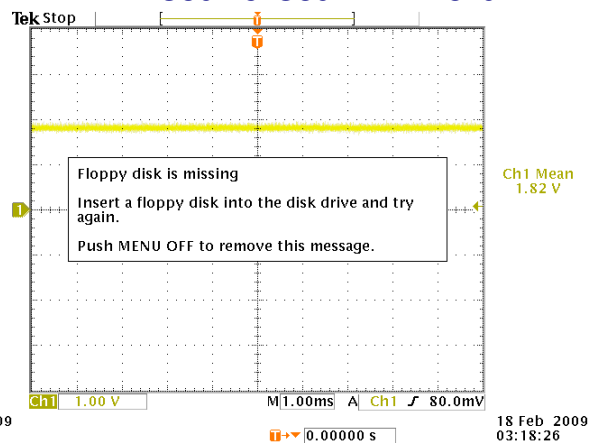




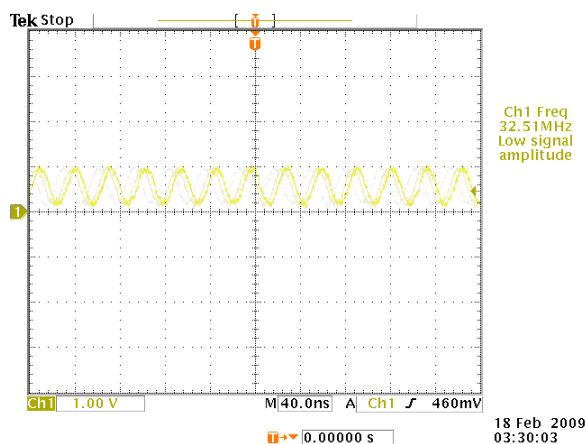
**C312 & B302:  $2.8 \pm 0.2V$**



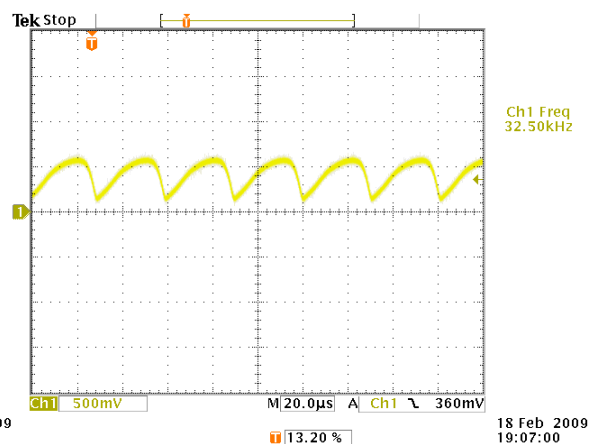
**C301 & C302:  $1.8 \pm 0.2V$**



**C306 or C309: 32MHz**

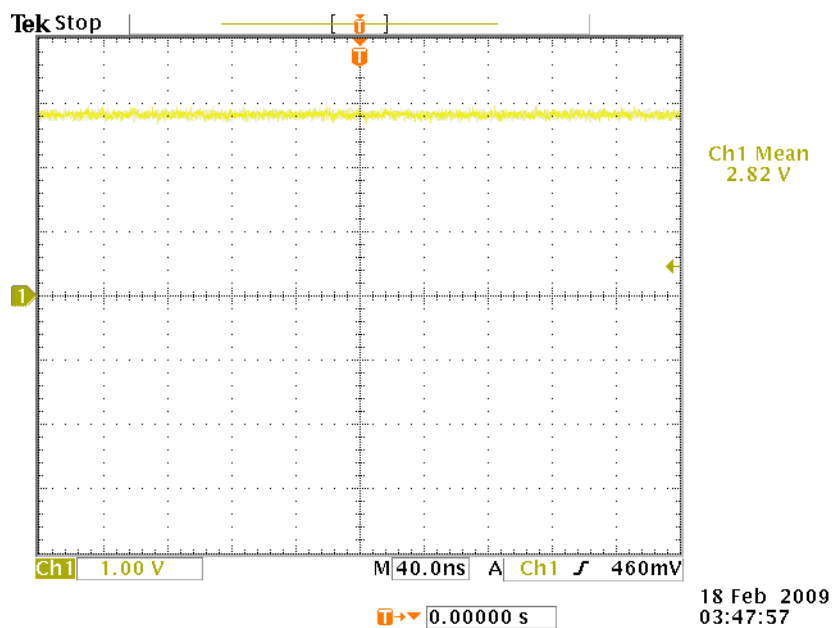


**C307: 32kHz**

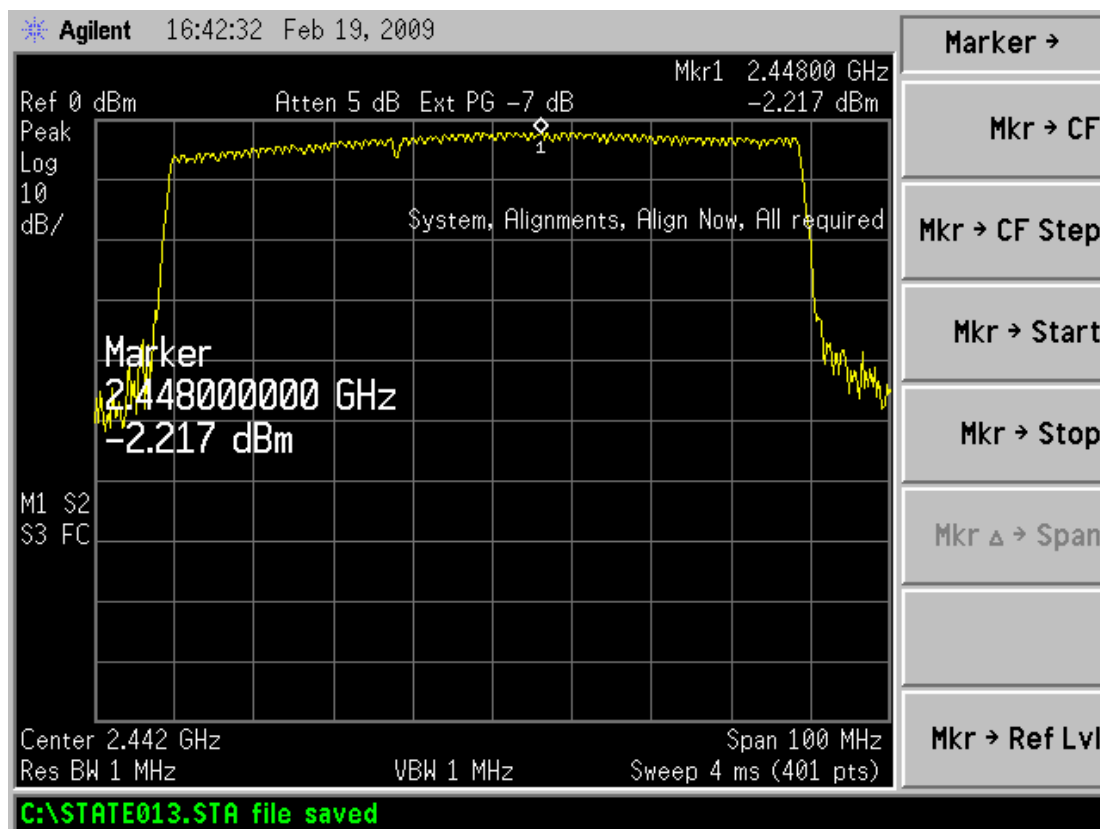




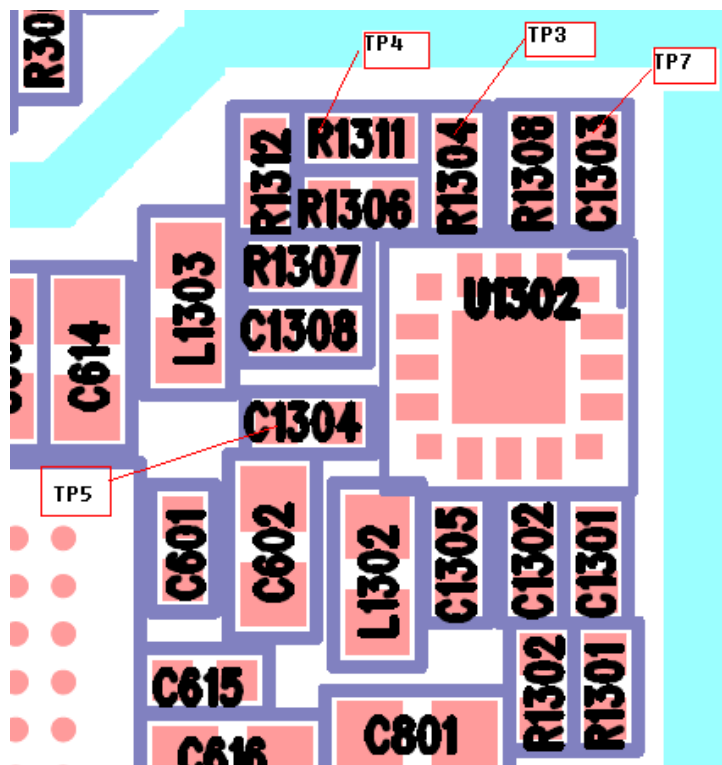
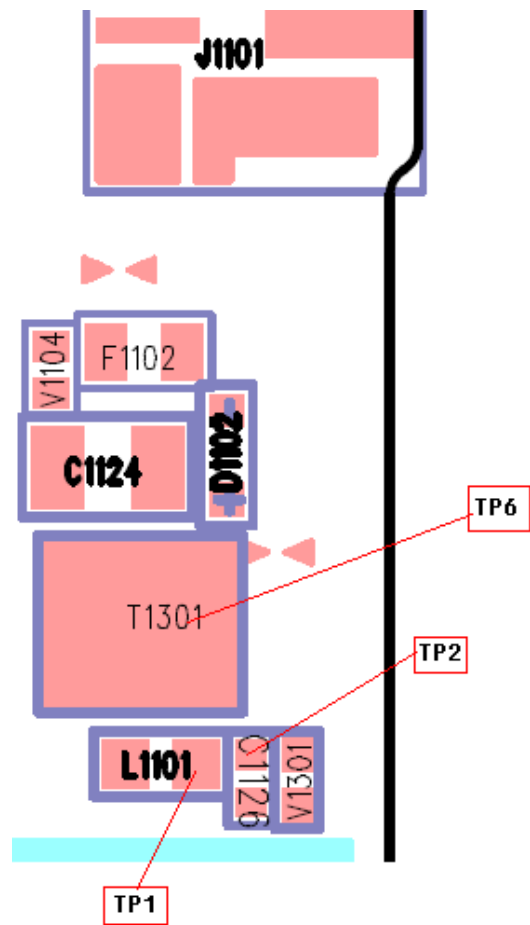
**R301:      $2.8 \pm 0.2\text{V}$ (high enable reset)**



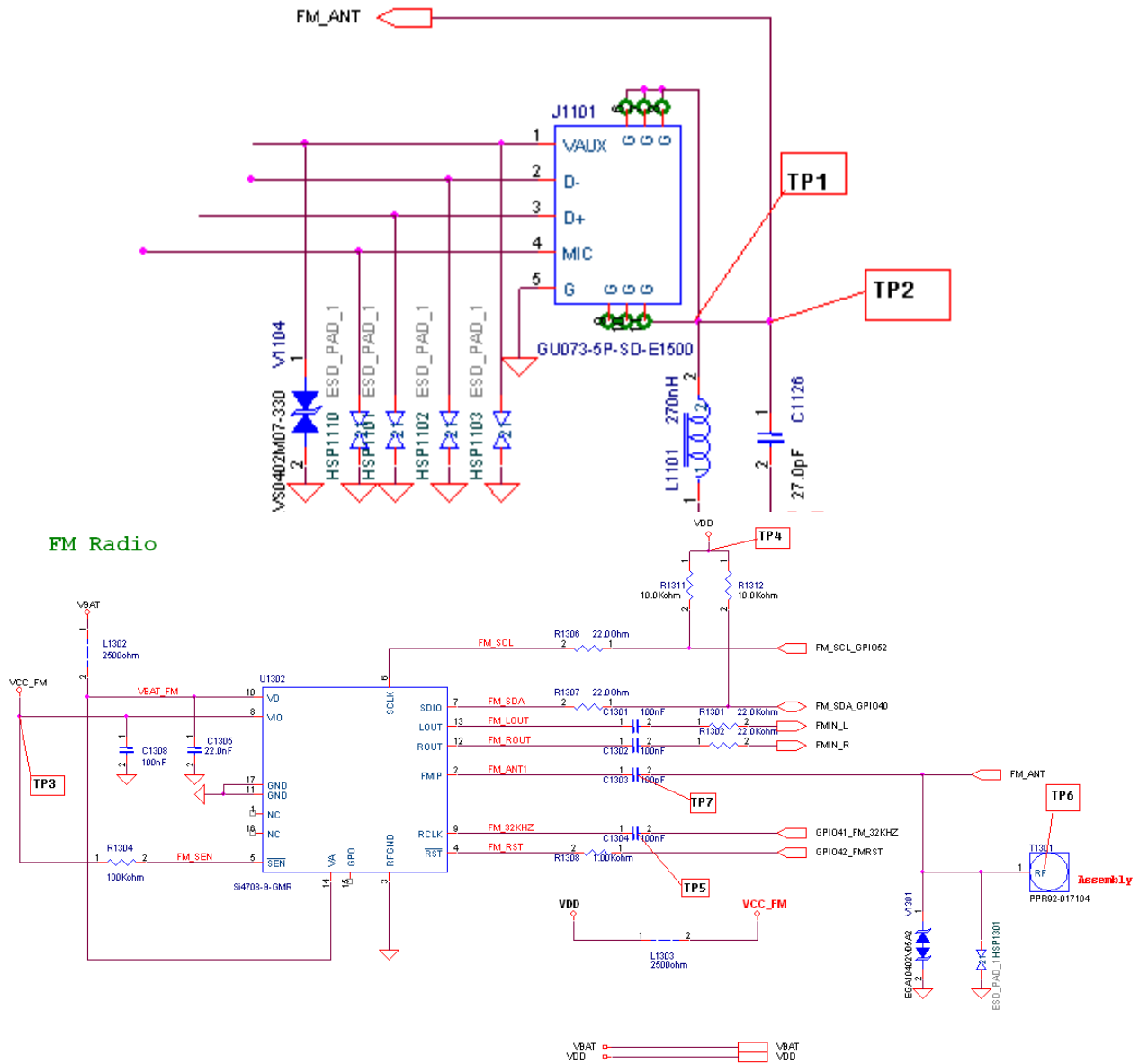
**FL301:      $1 \pm 5\text{dBm}$ (need to offset cableloss)  
2402~2480 MHz(frequency hopping)**



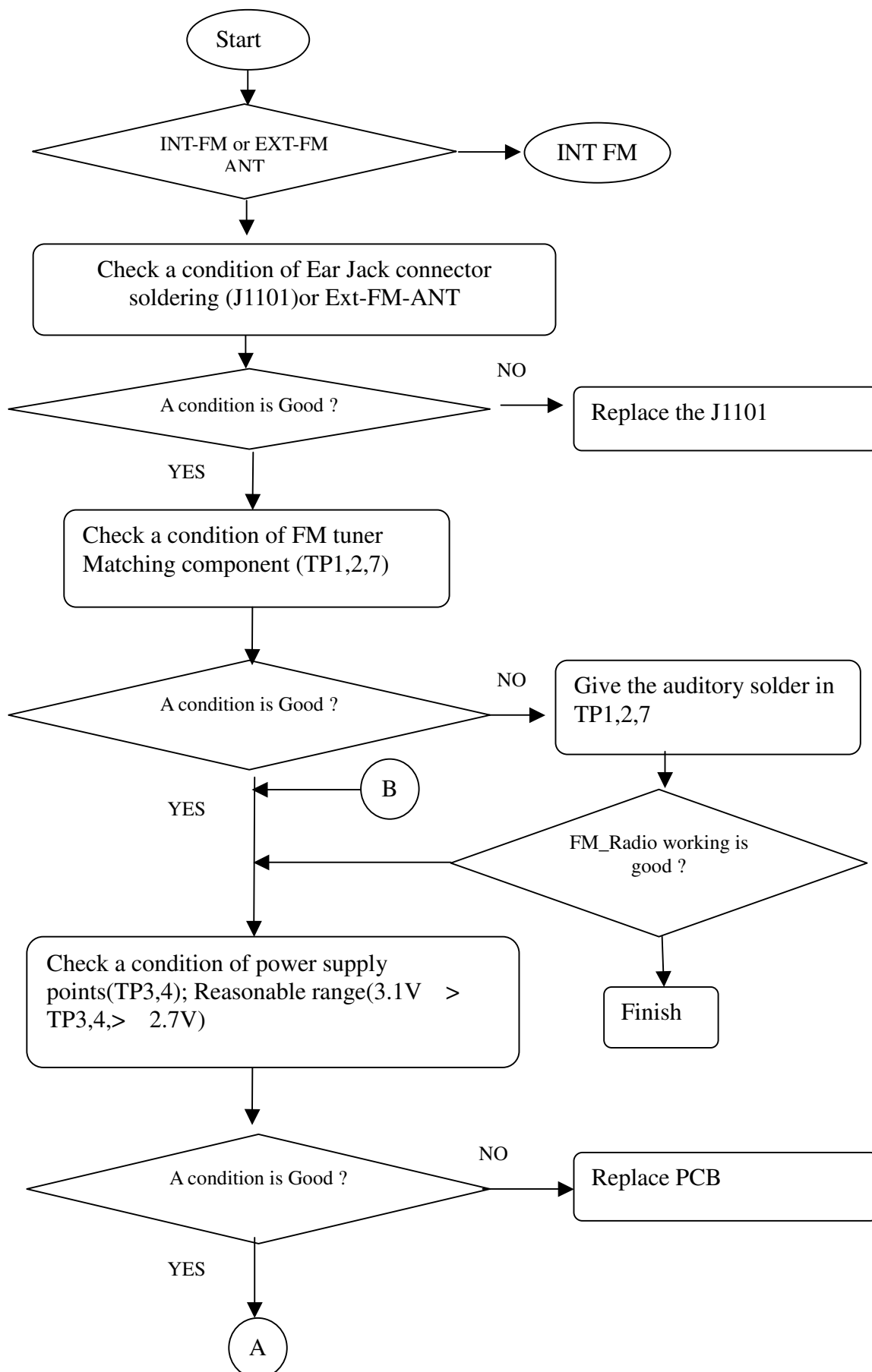
FM Radio Trouble  
Test Point

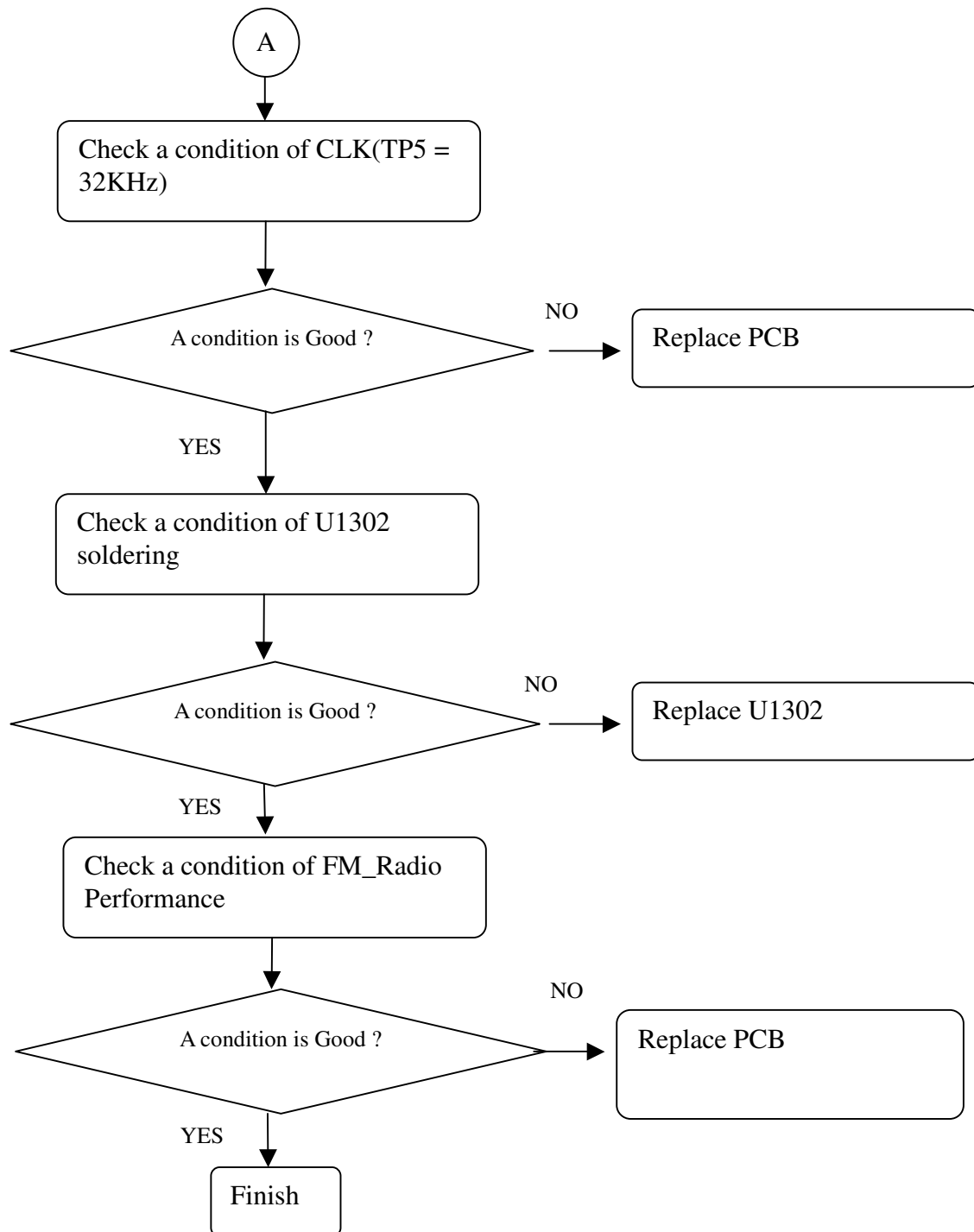


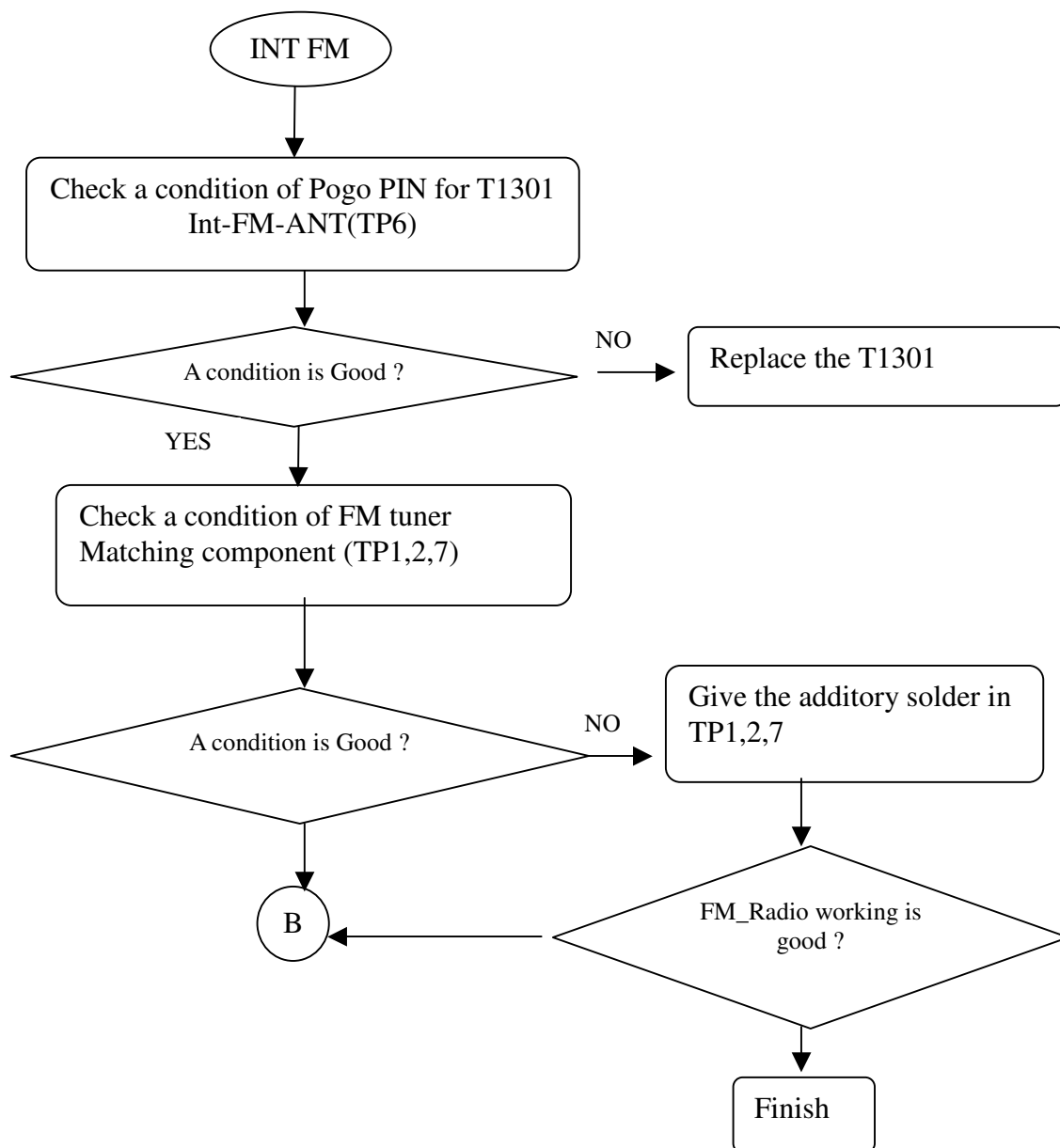
## Circuit Diagram



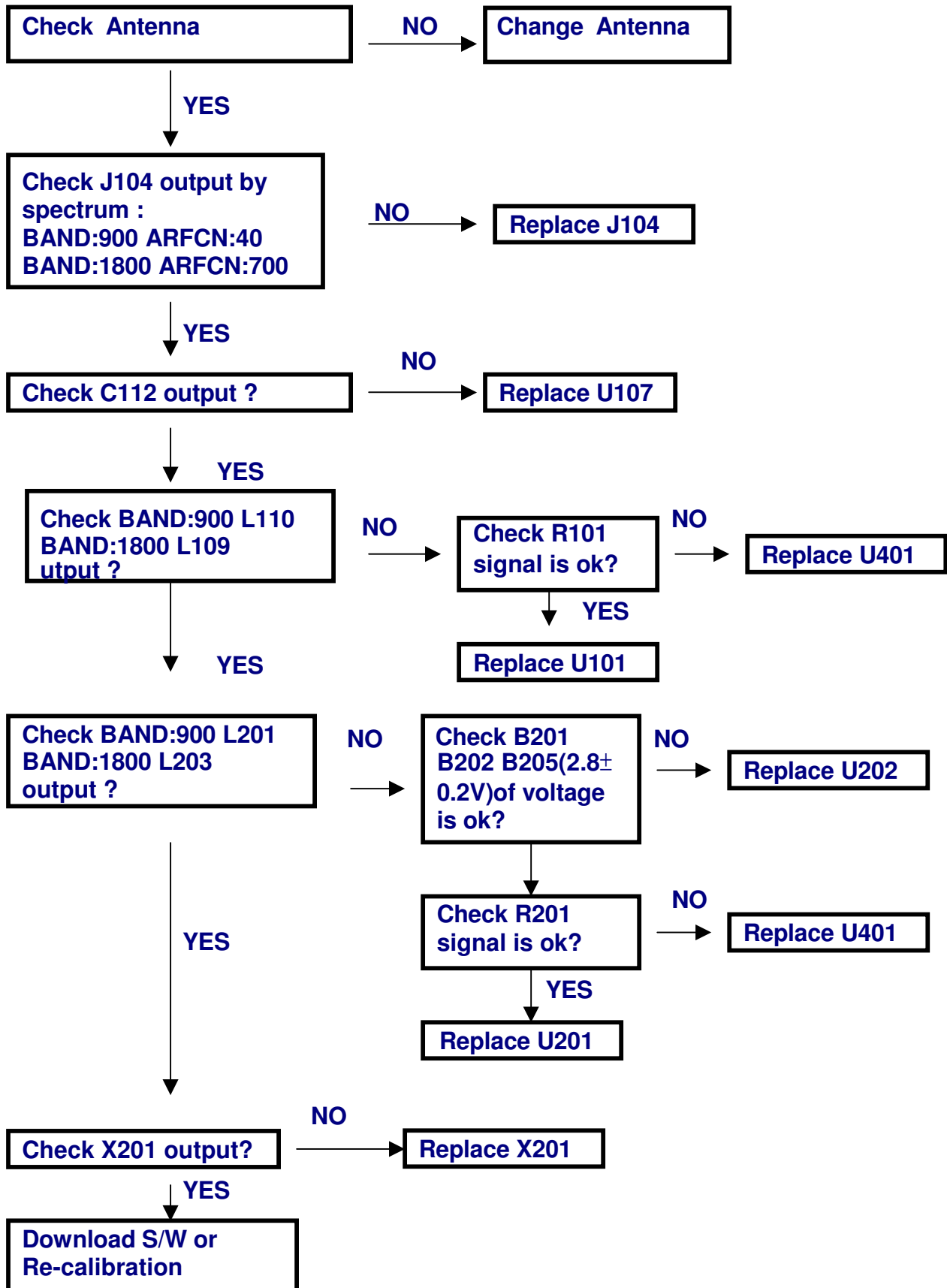
## Checking Flow

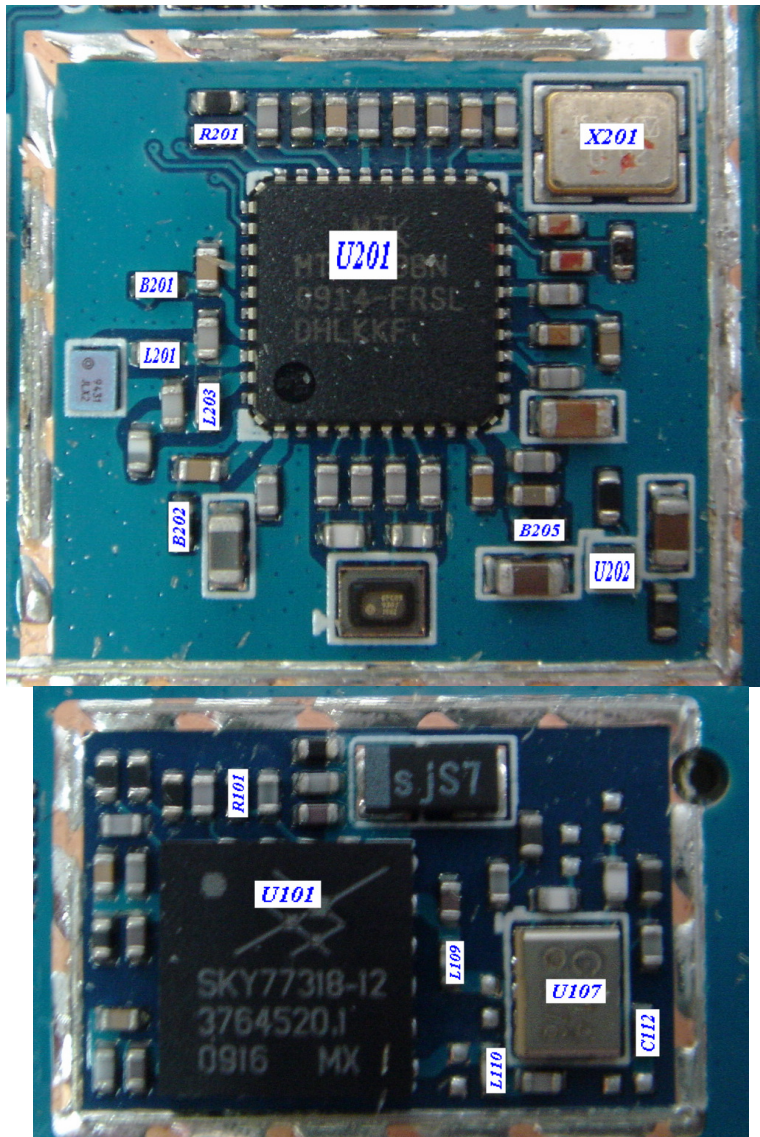






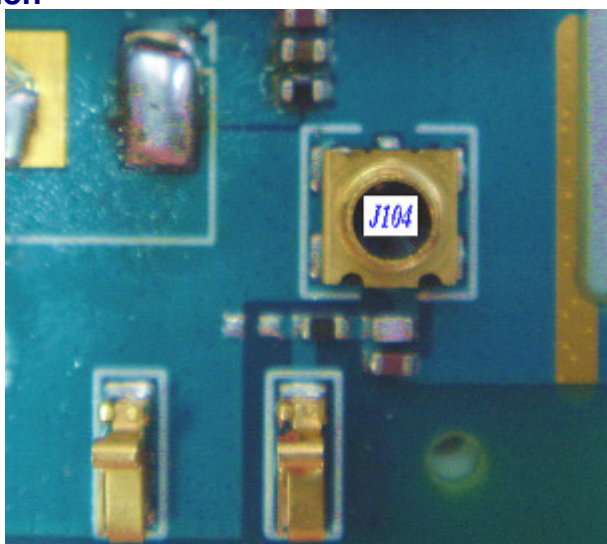
## RF Transceiver (MT6139)





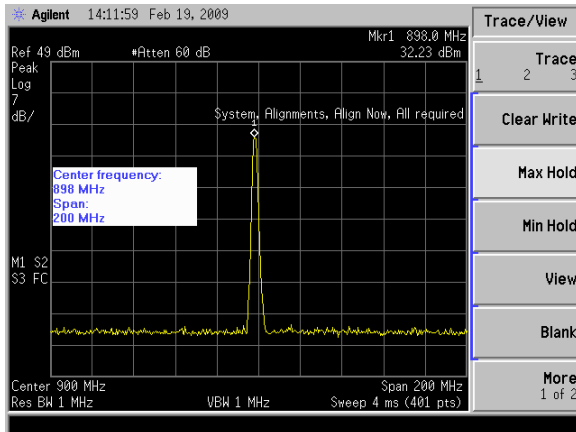
J104: (need to offset the cableloss) GSM900:  $32.5 \pm 3\text{dBm}$ (center channel=40) DCS1800:  $29.5 \pm 3\text{dBm}$ (centerchannel=700)

J104 position

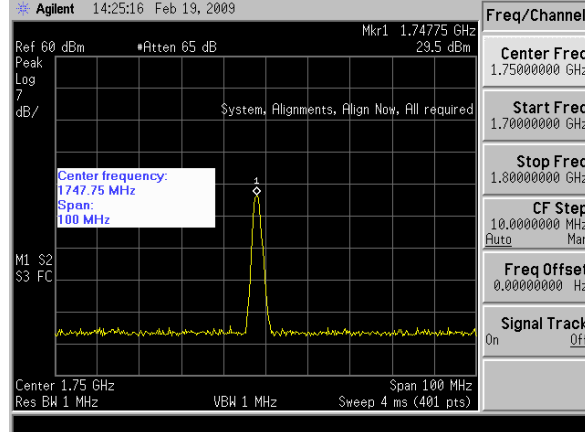




## GSM900



## DCS1800

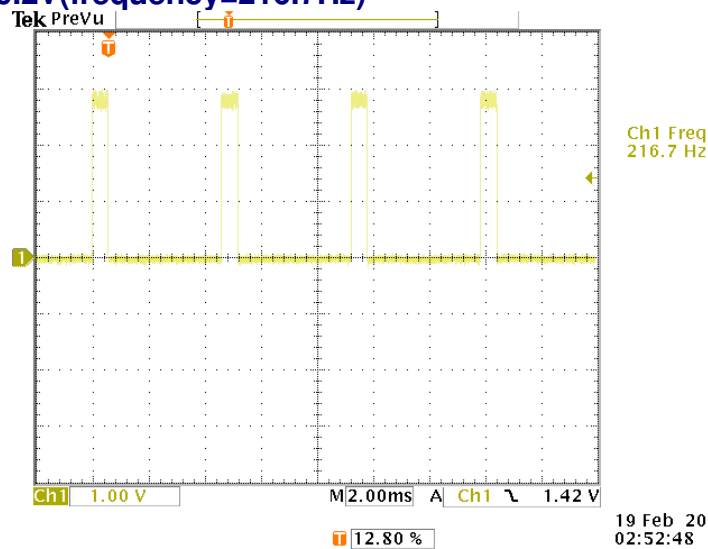


**C112:** as J104

**L110:**  $33 \pm 3 \text{ dBm}$  (GSM900 center channel=40)

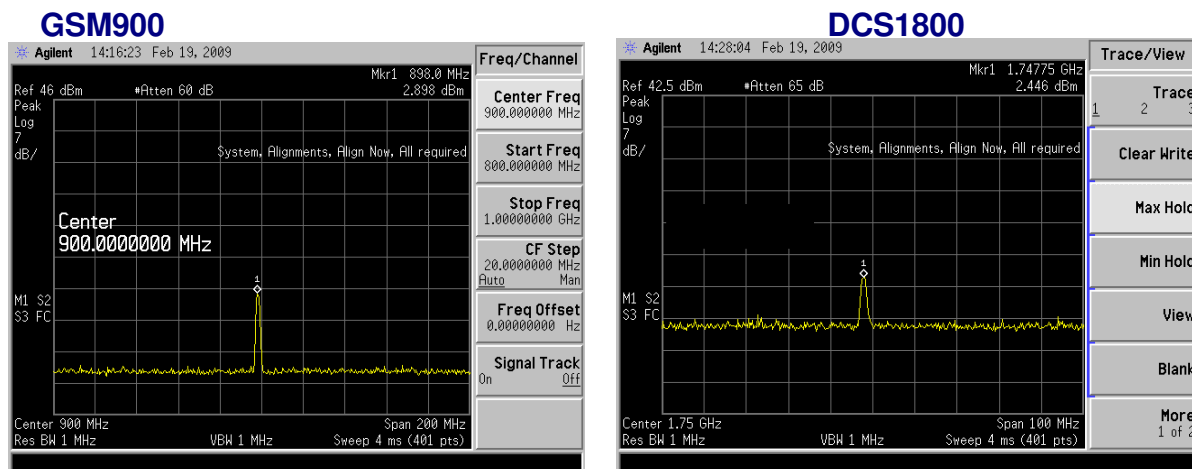
**L109:**  $30 \pm 3 \text{ dBm}$  (DCS1800 center channel=700)

**R101:**  $2.8 \pm 0.2 \text{ V}$  (frequency=216.7 Hz)

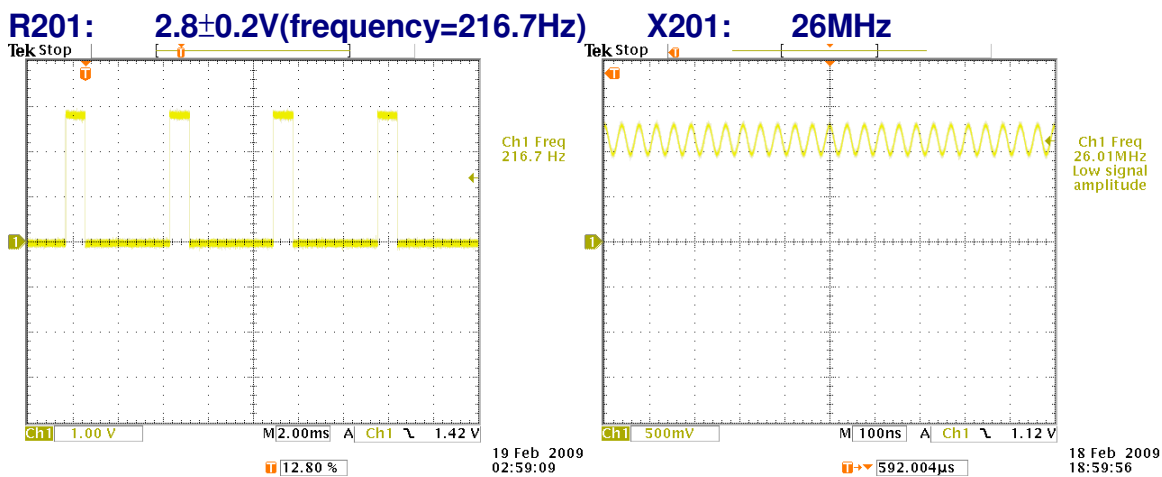


19 Feb 2009  
02:52:48

**L201: 3±3dBm(GSM900 center channel=40)**  
**L203: 3±3dBm(DCS1800 center channel=700)**

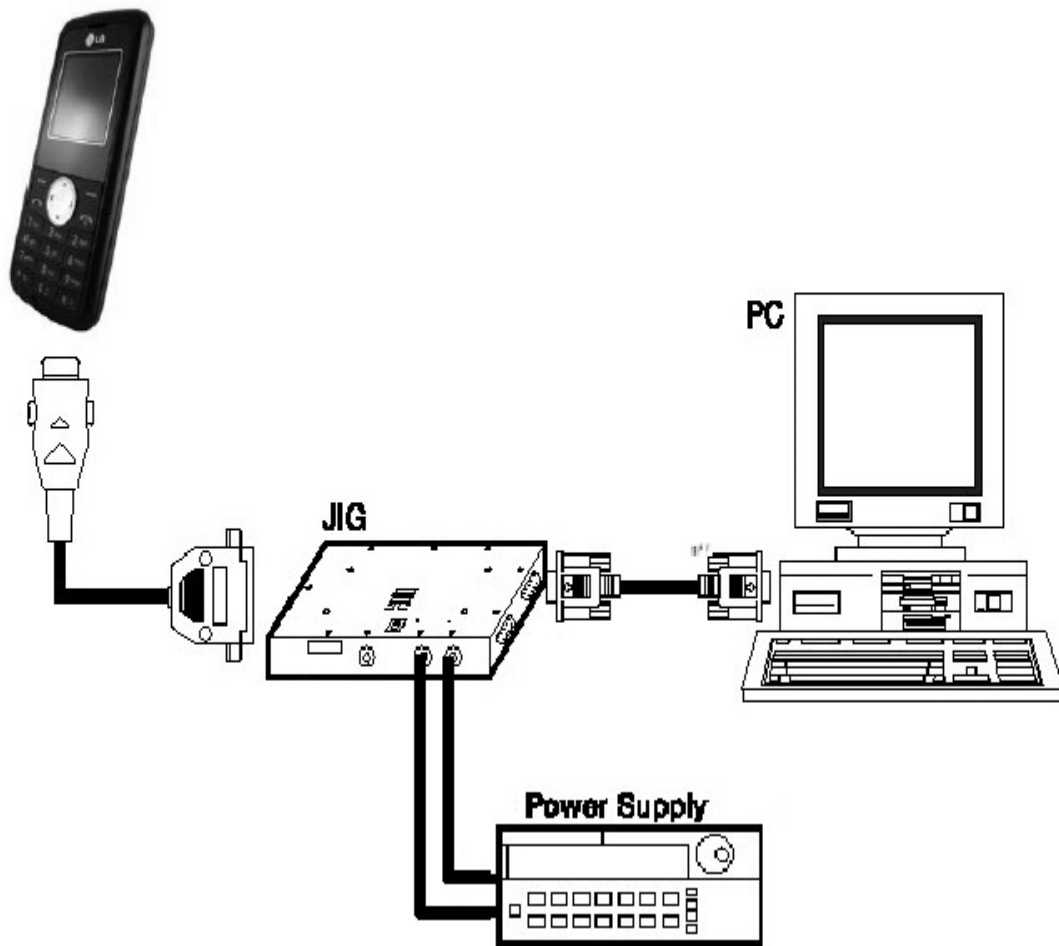


**B201 & B202 & B205: 2.8±0.2V**



## 5.DOWNLOAD

### 5.1 Download setup



## 5.2 LEO Download process

### ■ Tools

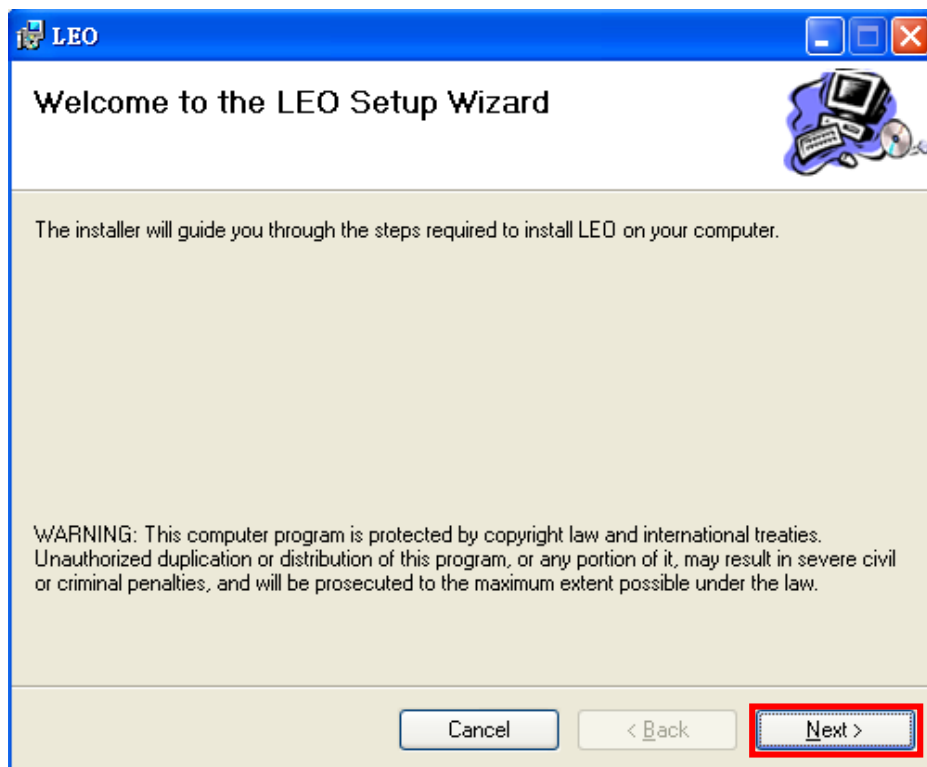
1. Download cable(**Prolific USB-to-Serial**)
2. PC
3. Battery (3.8 V Li-ion Battery)

### ■ How to installation Leo download tool

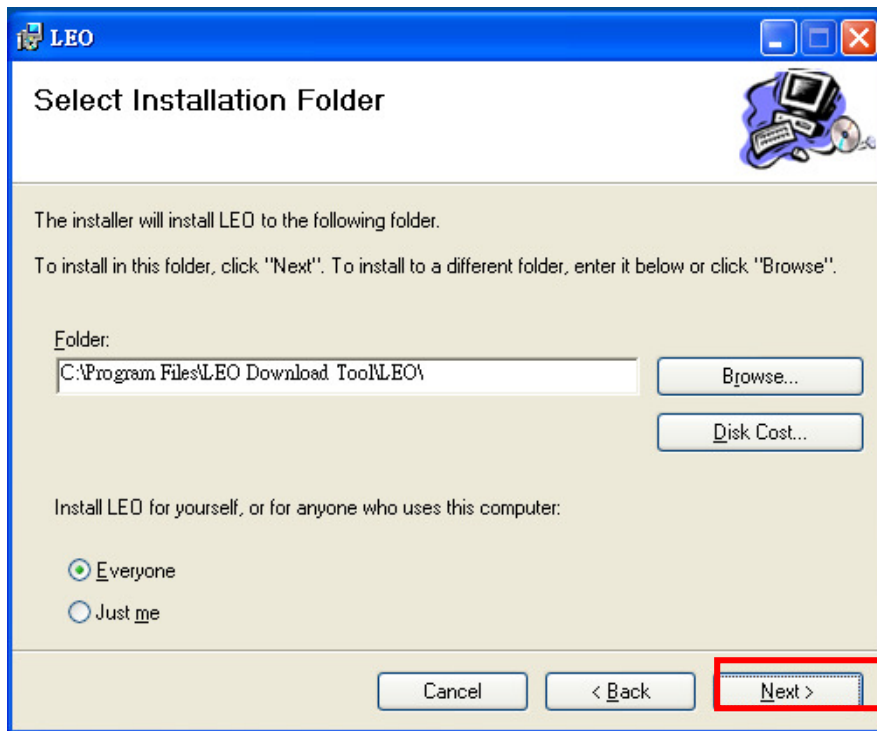
1. You must install “Prolific USB-to-Serial Comm Port” driver first before installing this program, and then double click the “Setup.msi” start installation.



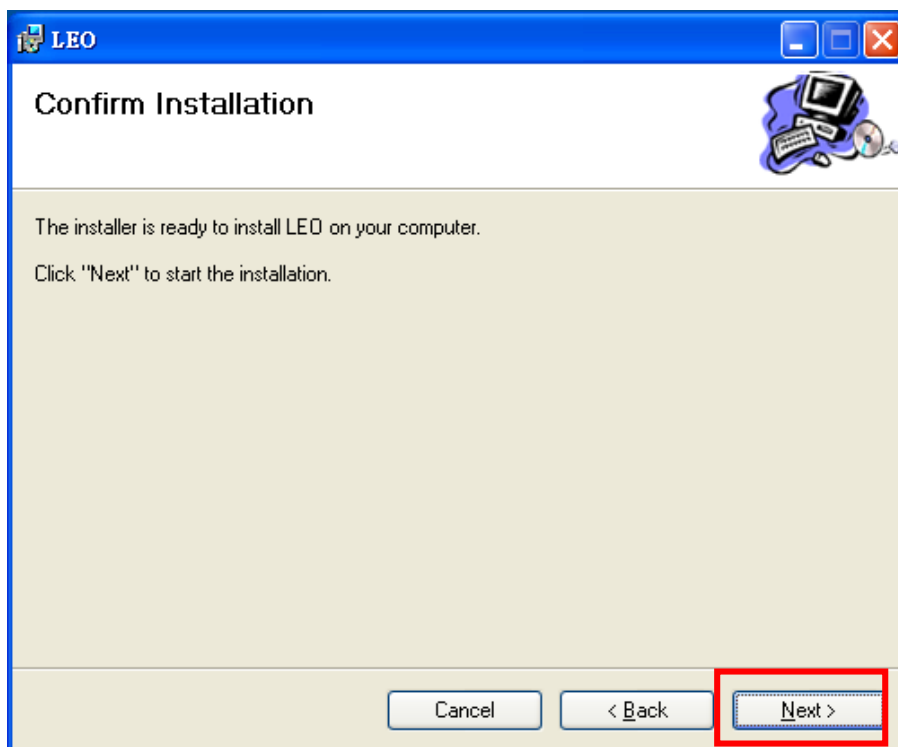
2. You can see the below picture, and then click the “Next” button.



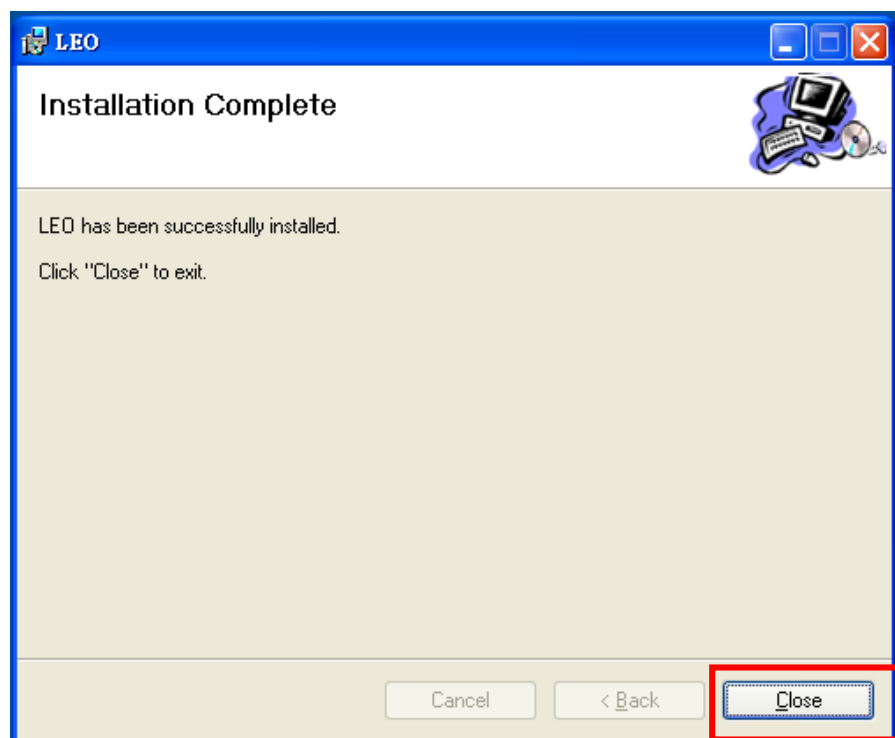
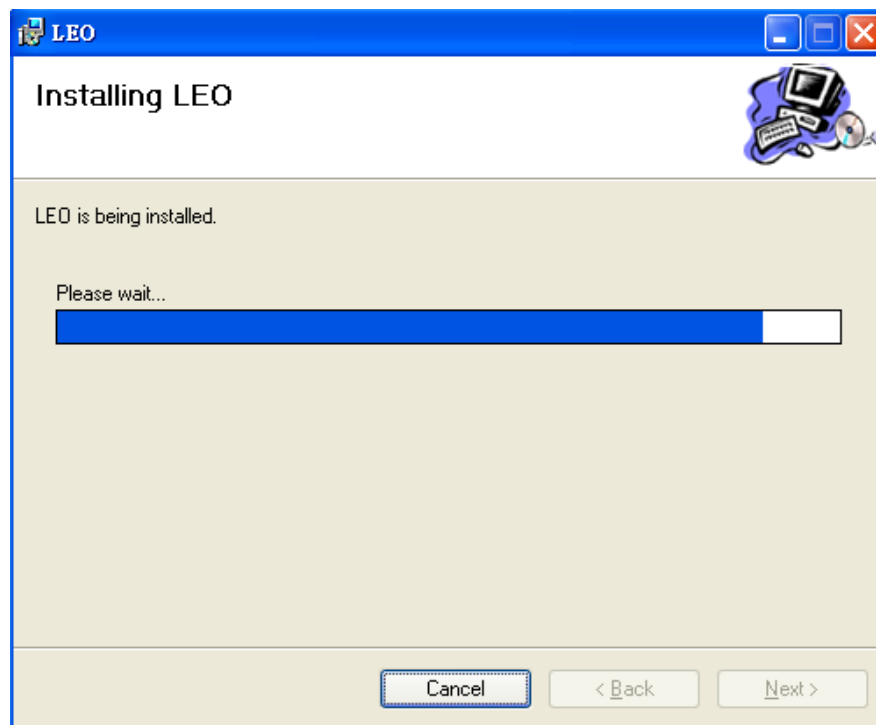
3. You can see the below picture, and then click the “Next” button.



4. You can see the below picture, and then click the “Next” button.



5. You can see the below Installing picture, and then click the “Close” button installation complete.



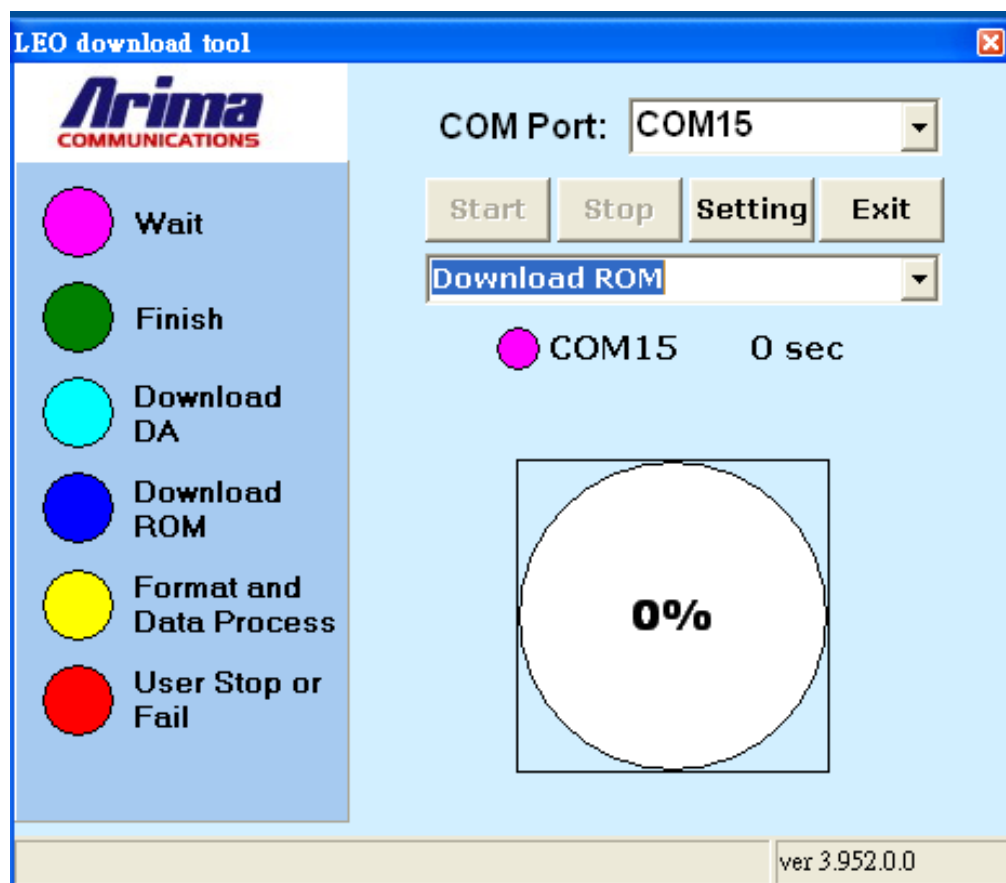
## ■ How to user Leo download tool

**For example:** GS205-00-V09b-404-XX-FEB-27-2010

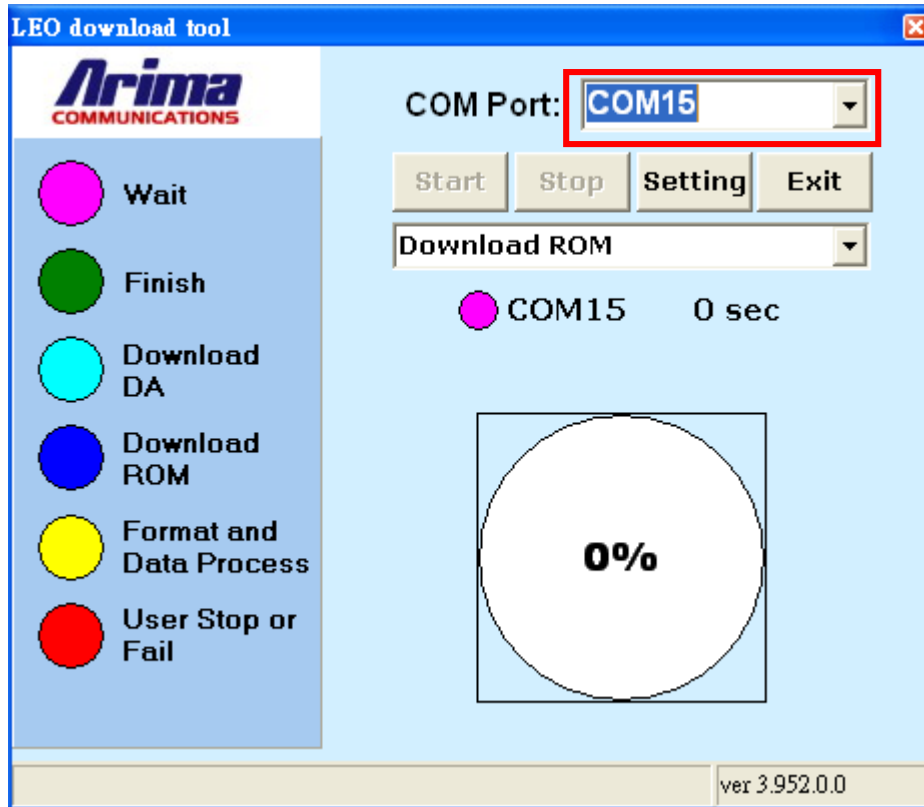
1.Connect Download cable with computer, and then double click the” **LEO Download Tool**”.



2.you can see the below picture.



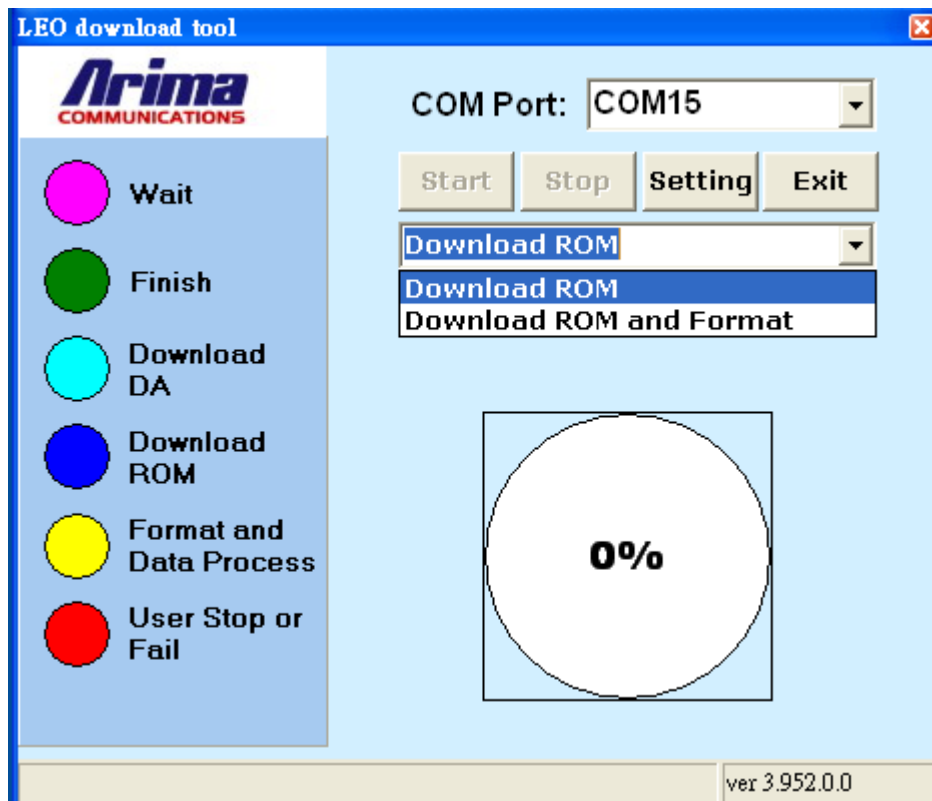
3. Select COM port (LEO will auto detect COM port)



4. Select Download mode.

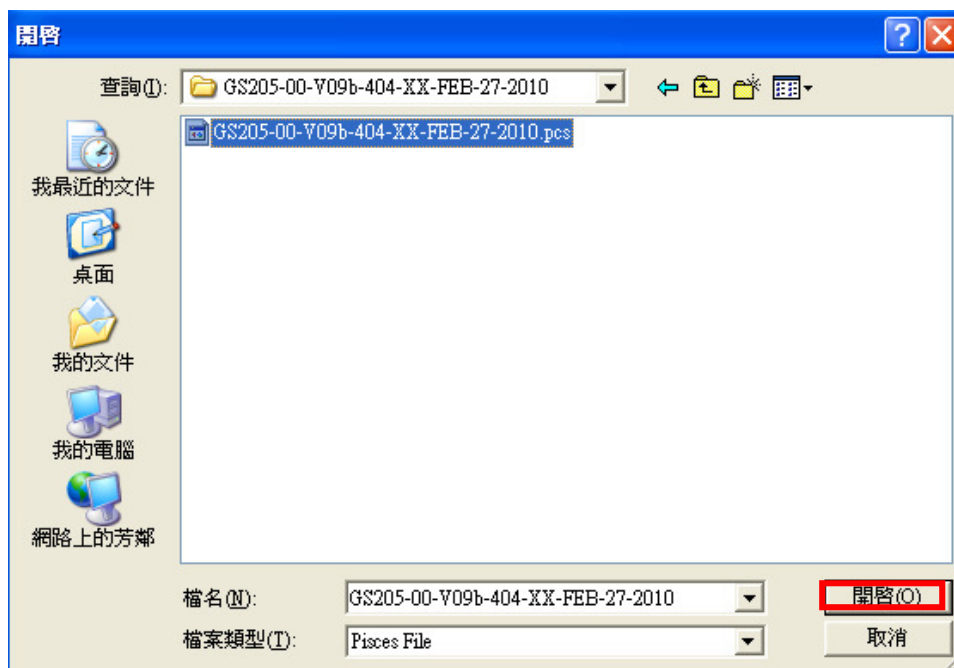
**Note:**① If you select “**Download ROM**”, it will download software only.

② If you select “**Download ROM and Format**”, it will download software and delete NVRAM all data except calibration data and IMEI number, and delete user disk data include contact information 、 message etc, also it still will reset META\_NVRAM to factory default.

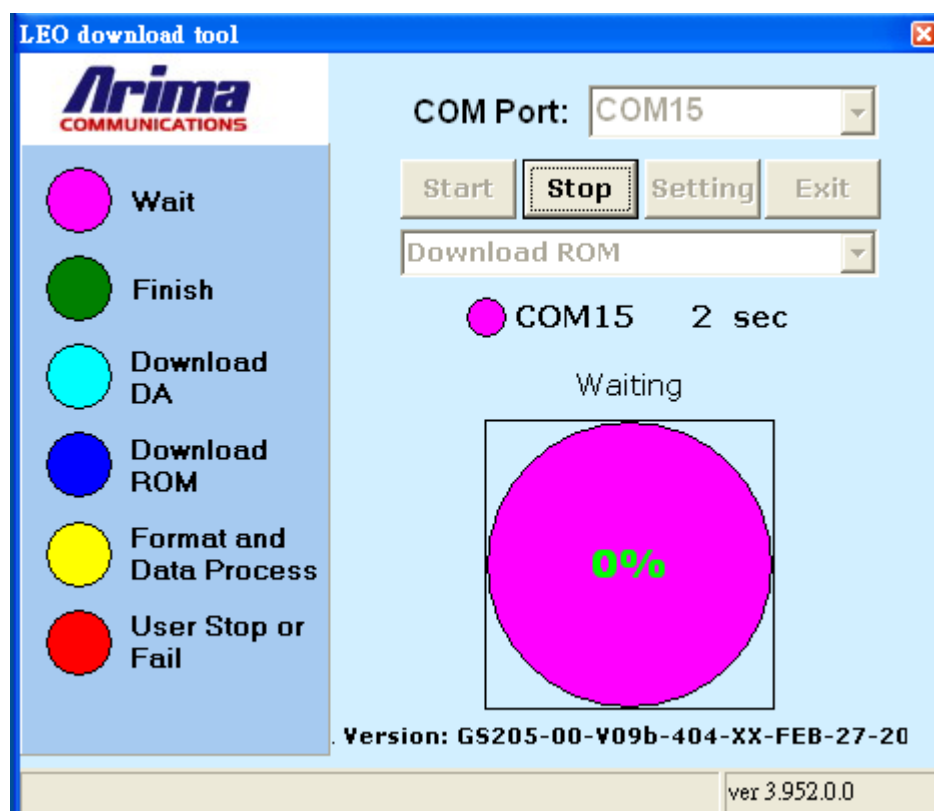




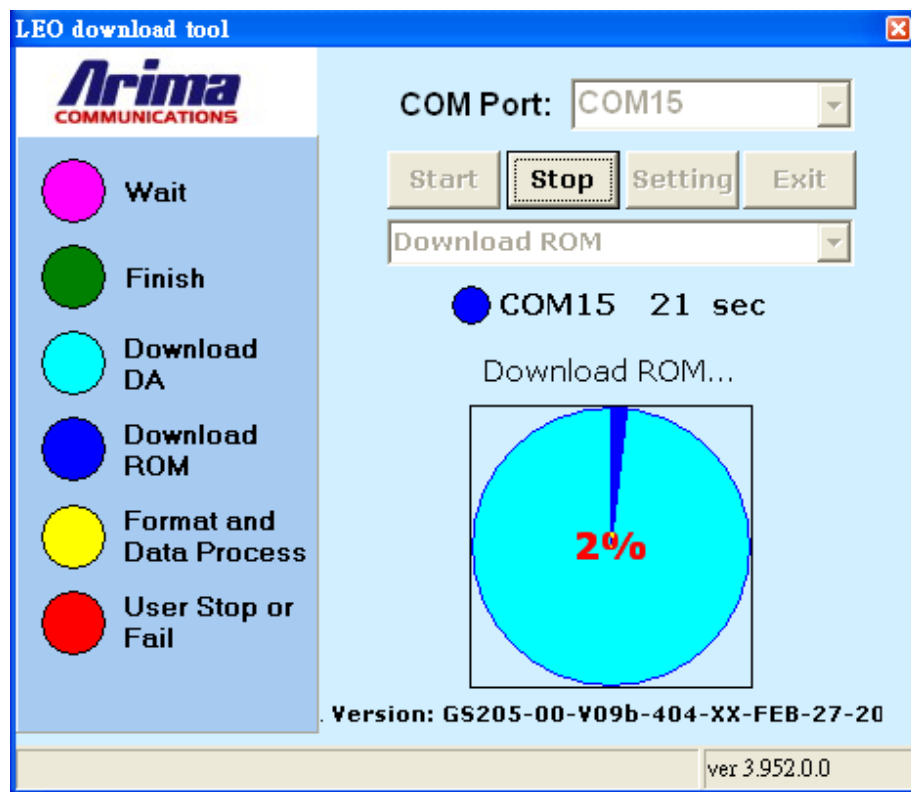
5. Click the “Setting” button and select a valid file. The file always be end of “.PCS” , reference below picture.



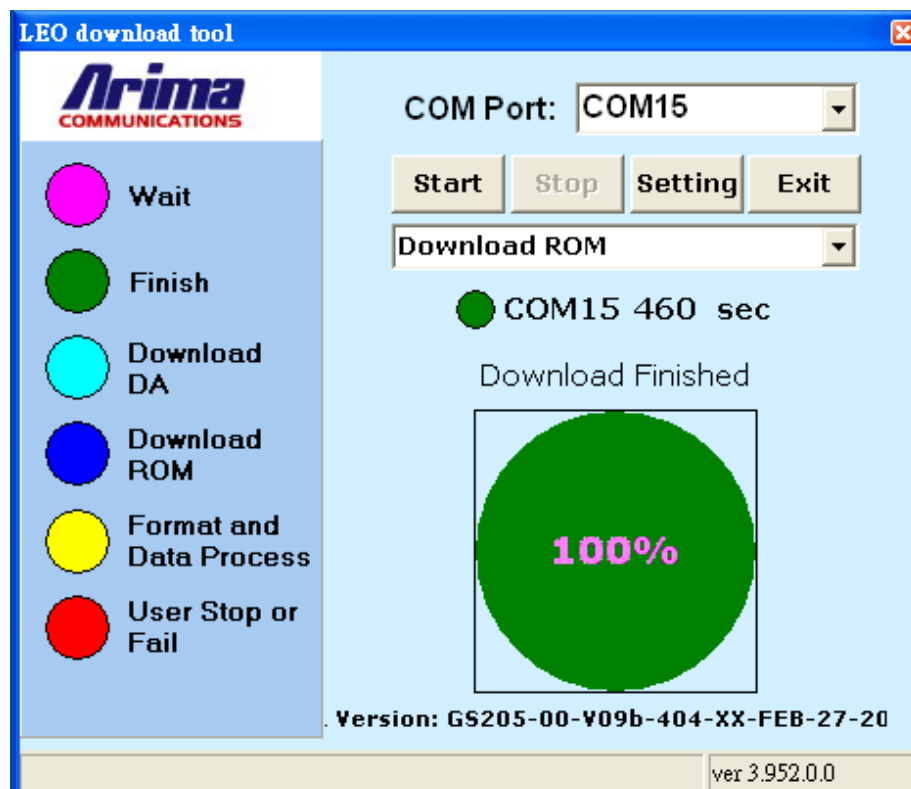
6. Select the “. PCS” file and press open, you can see following picture.



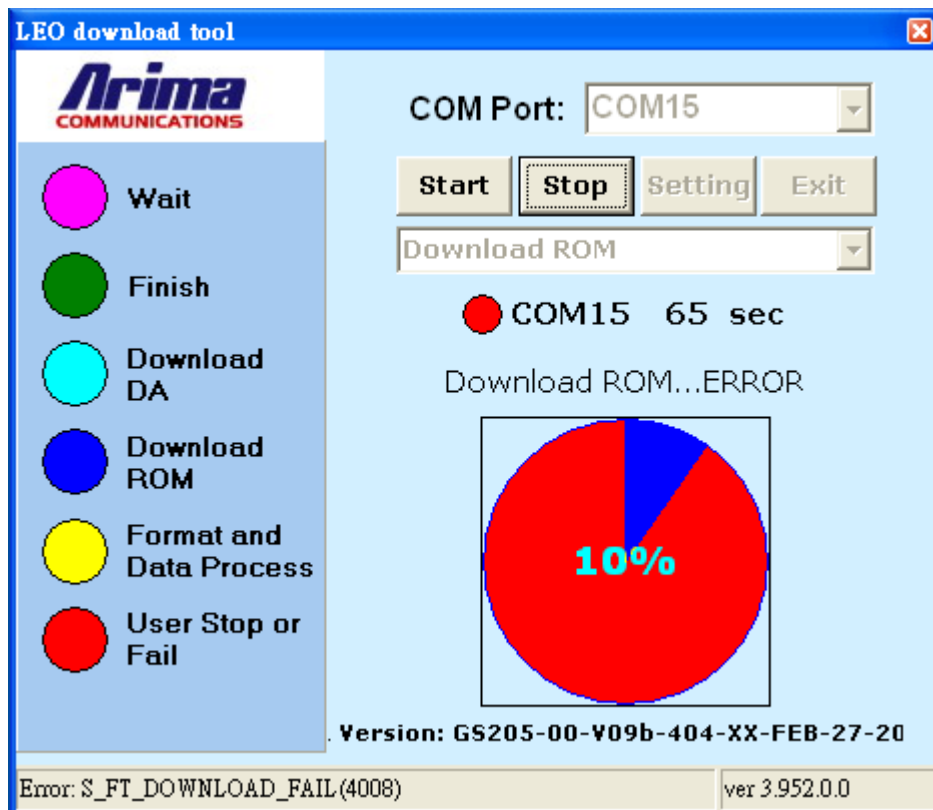
7.After you see the pink cycle, connect download cable with handset, and then press the power key , you will see below picture.



8.After reach to 100%, SW download finish.



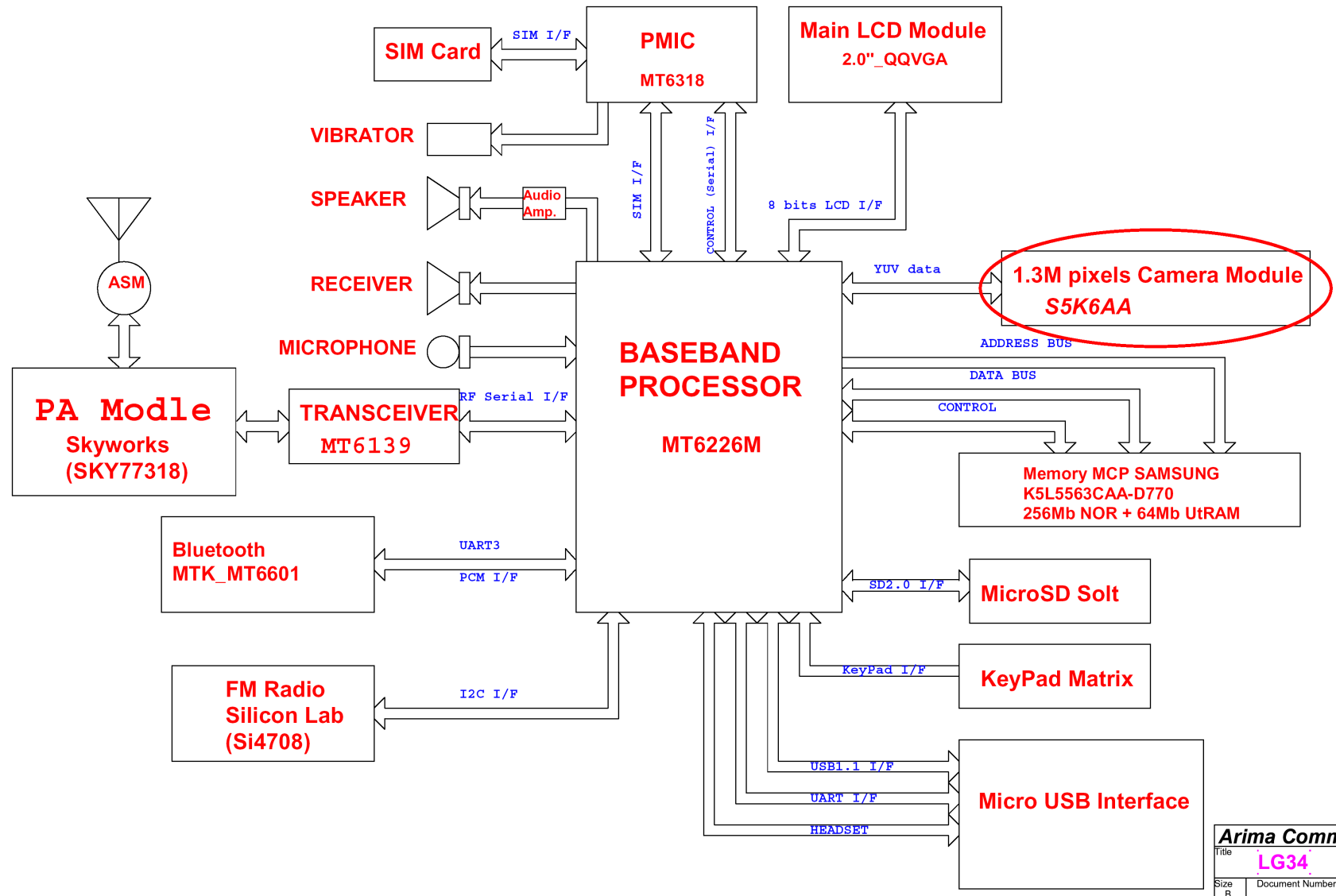
9.If download failed, you will see the below picture.



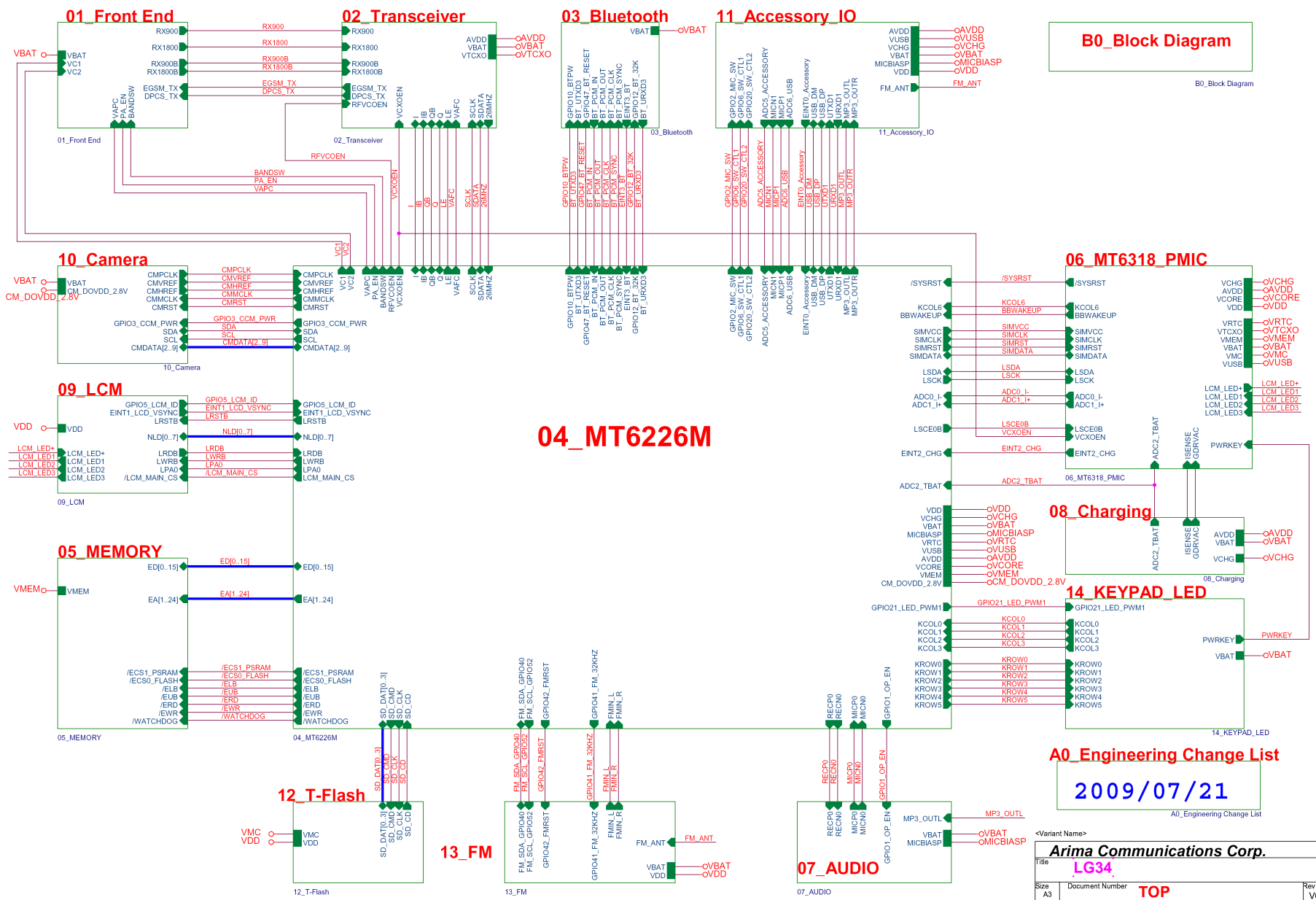
**Attention:** If appear failed image, Please try close LEO and try open again.

## 6. BLOCK DIAGRAM

### LG34 BLOCK DIAGRAM



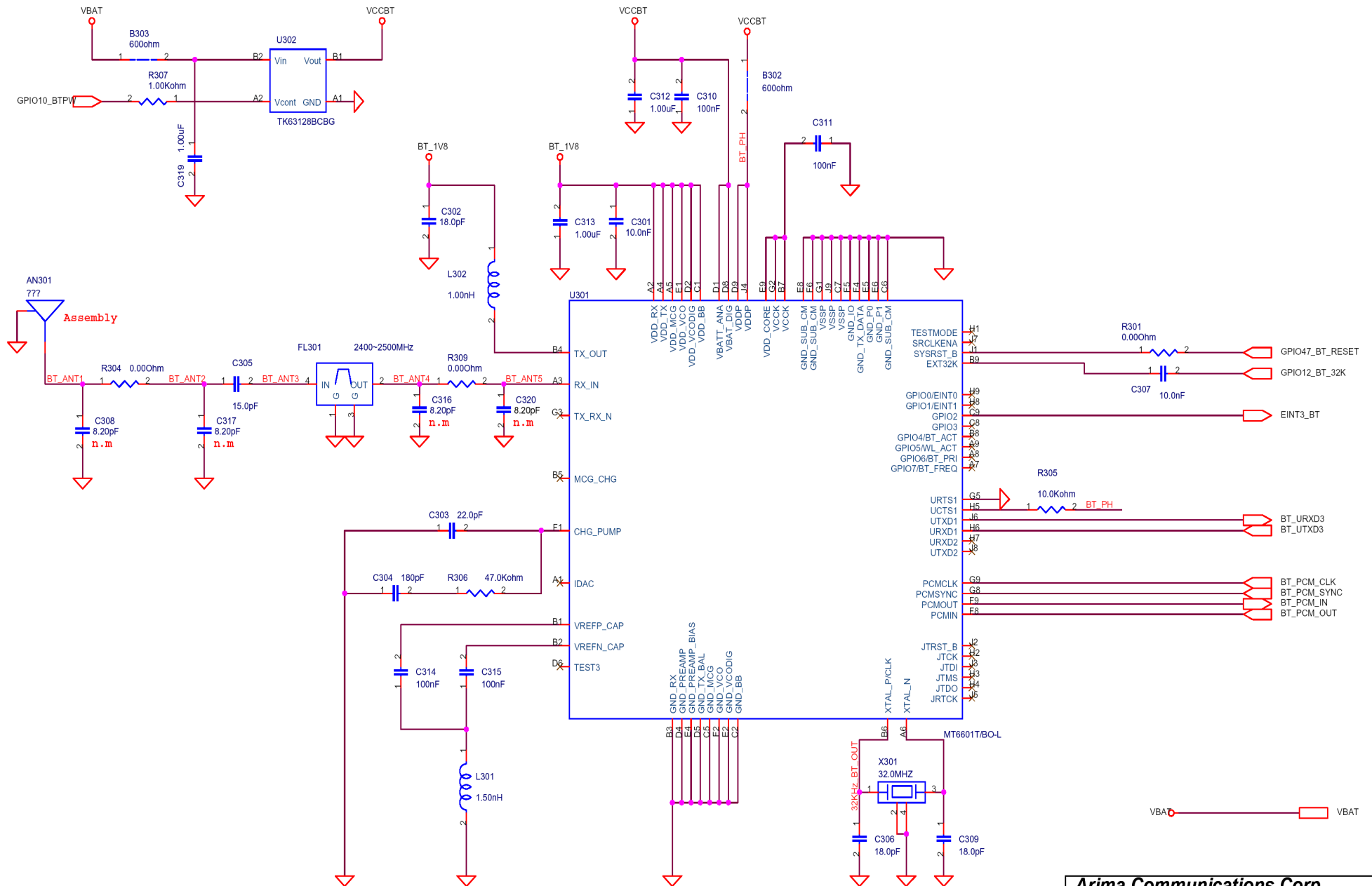
7. CIRCUIT DIAGRMA





	VC1	VC2
TX1_G	H	L
TX2_D	L	H
RX1_G	L	L
RX2_D	L	L















[illegible]

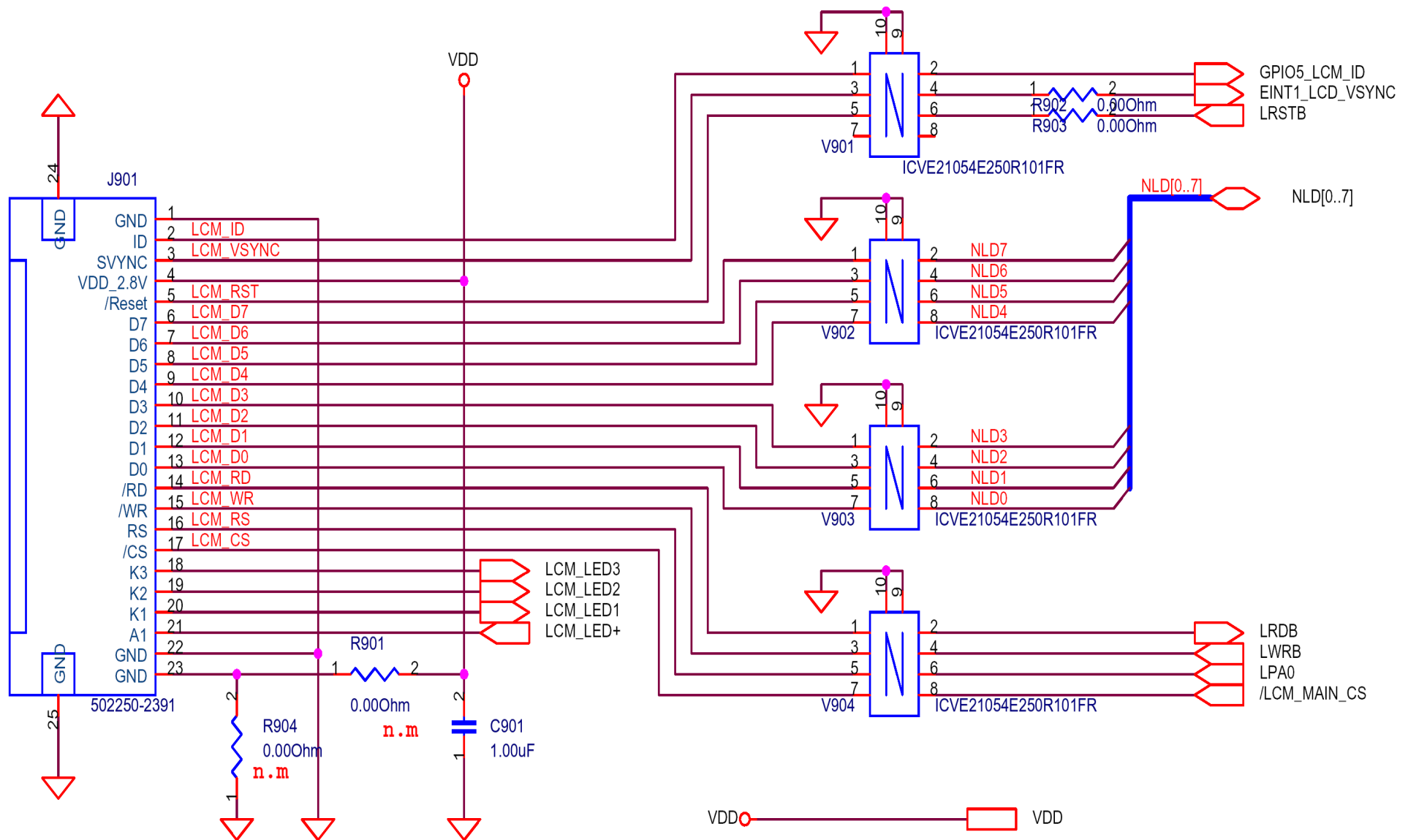
The schematic diagram illustrates the internal circuitry of the SD-1206D-6-1 Assembly. It features two input lines, RECNO and RECP0, which are connected to a series of components including capacitors (C709, C708, C710), resistors (B701, B702), diodes (V703, V705), and transistors (HSP701, HSP702). The outputs of the circuit are RECNO\_1 and RECP0\_1, which are connected to a speaker symbol labeled SD-1206D-6-1 Assembly. Ground symbols are shown at various points in the circuit.



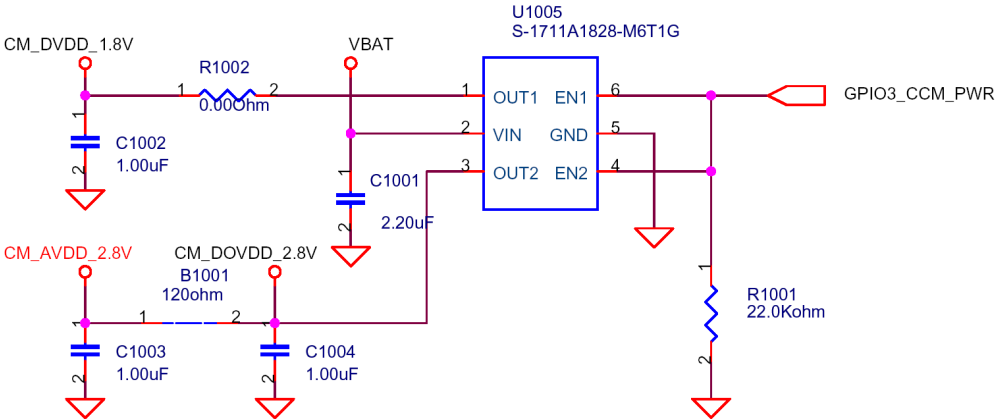
# Battery Connector



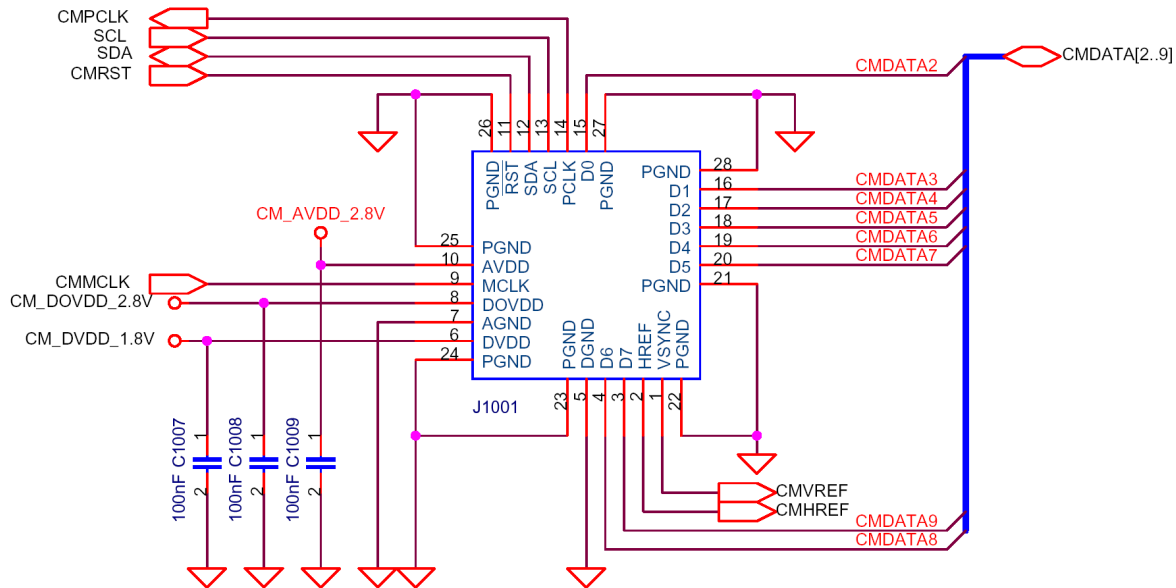
# LCM Cnnector



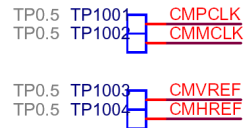
## Camera LDO



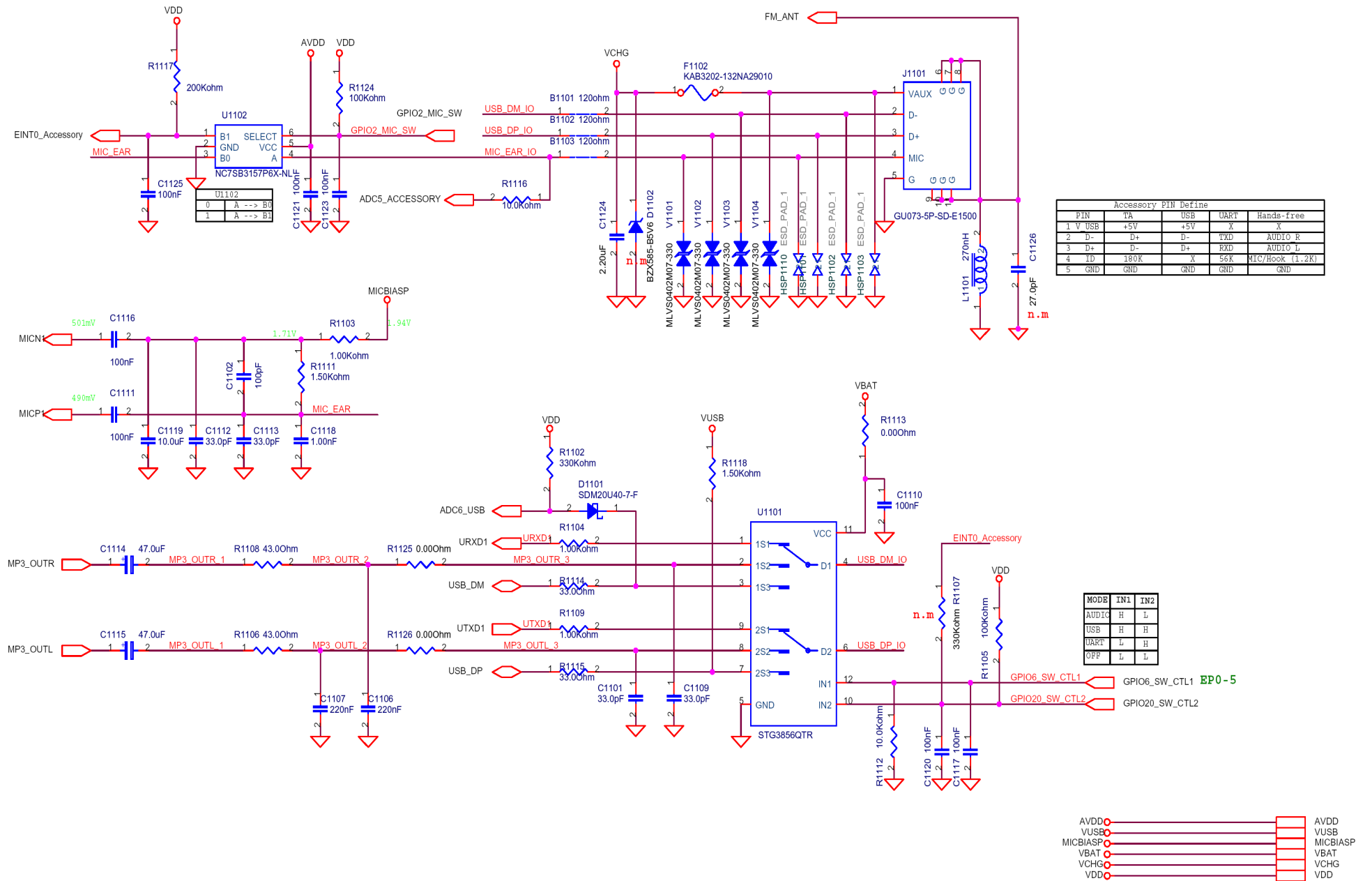
# Camera Module



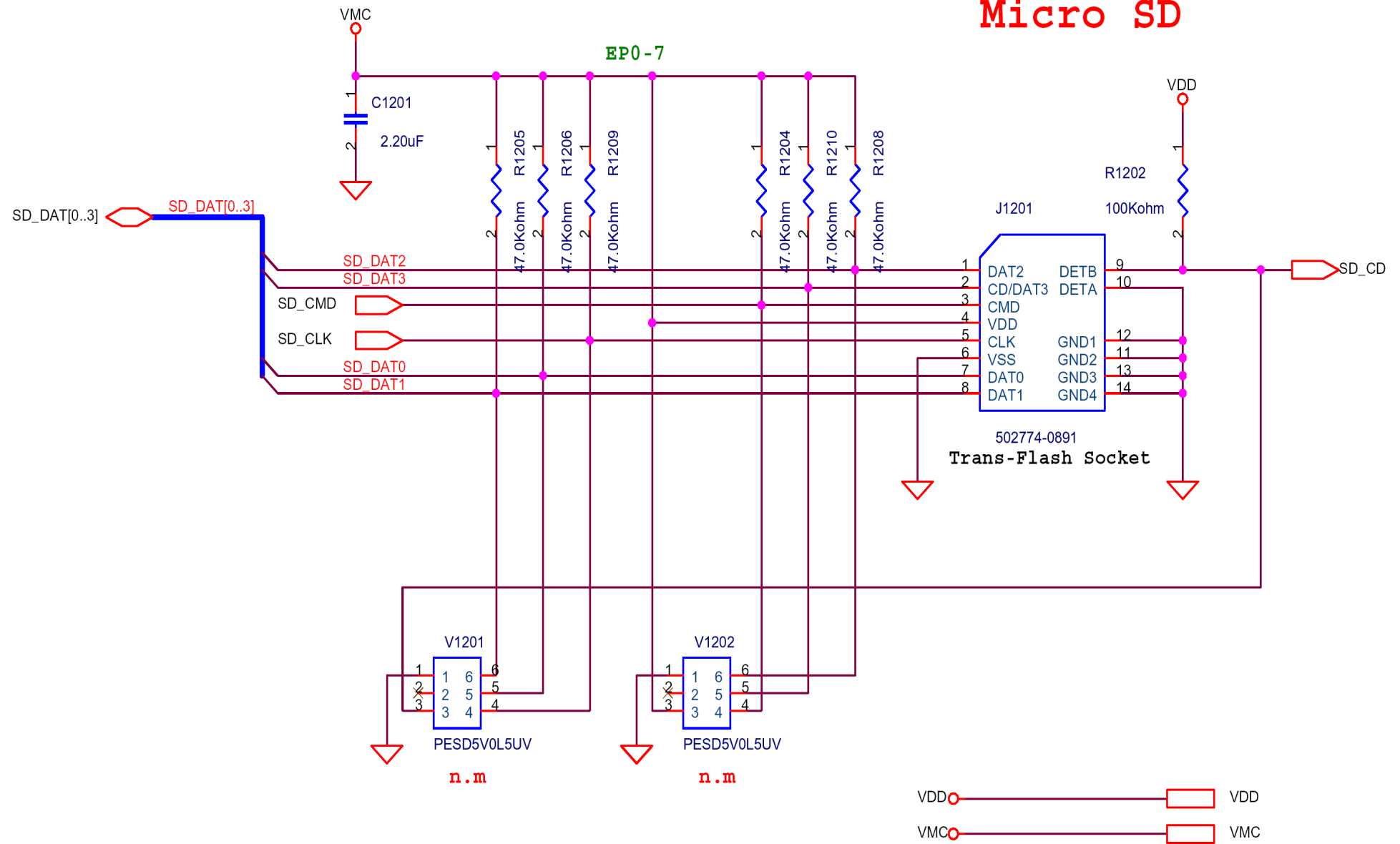
```
I\O --> CM_D0VDD=2.8V;
ANALOG --> CM_AVDD=2.8V;
CORE --> CM_DVDD=1.8V;
```



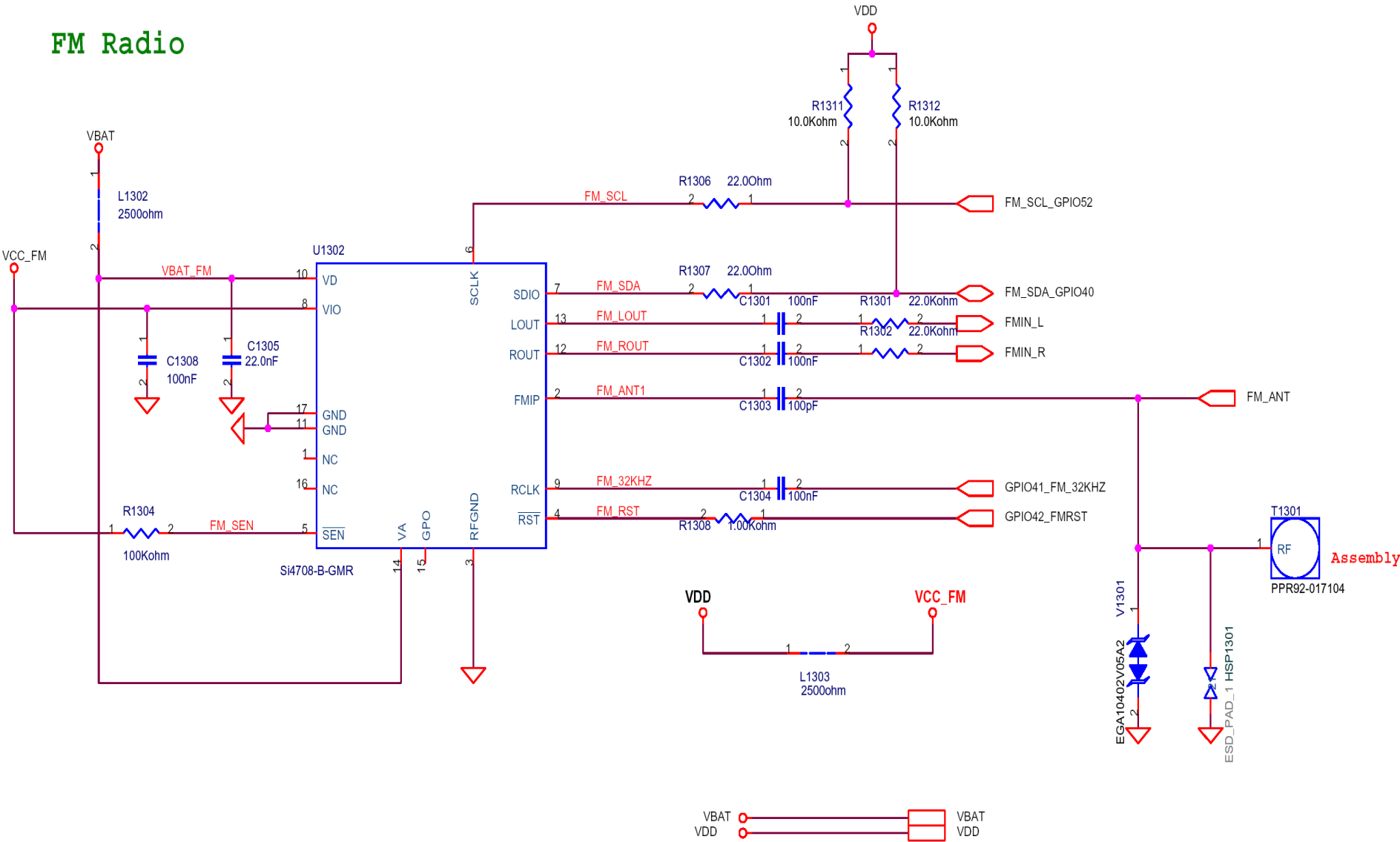




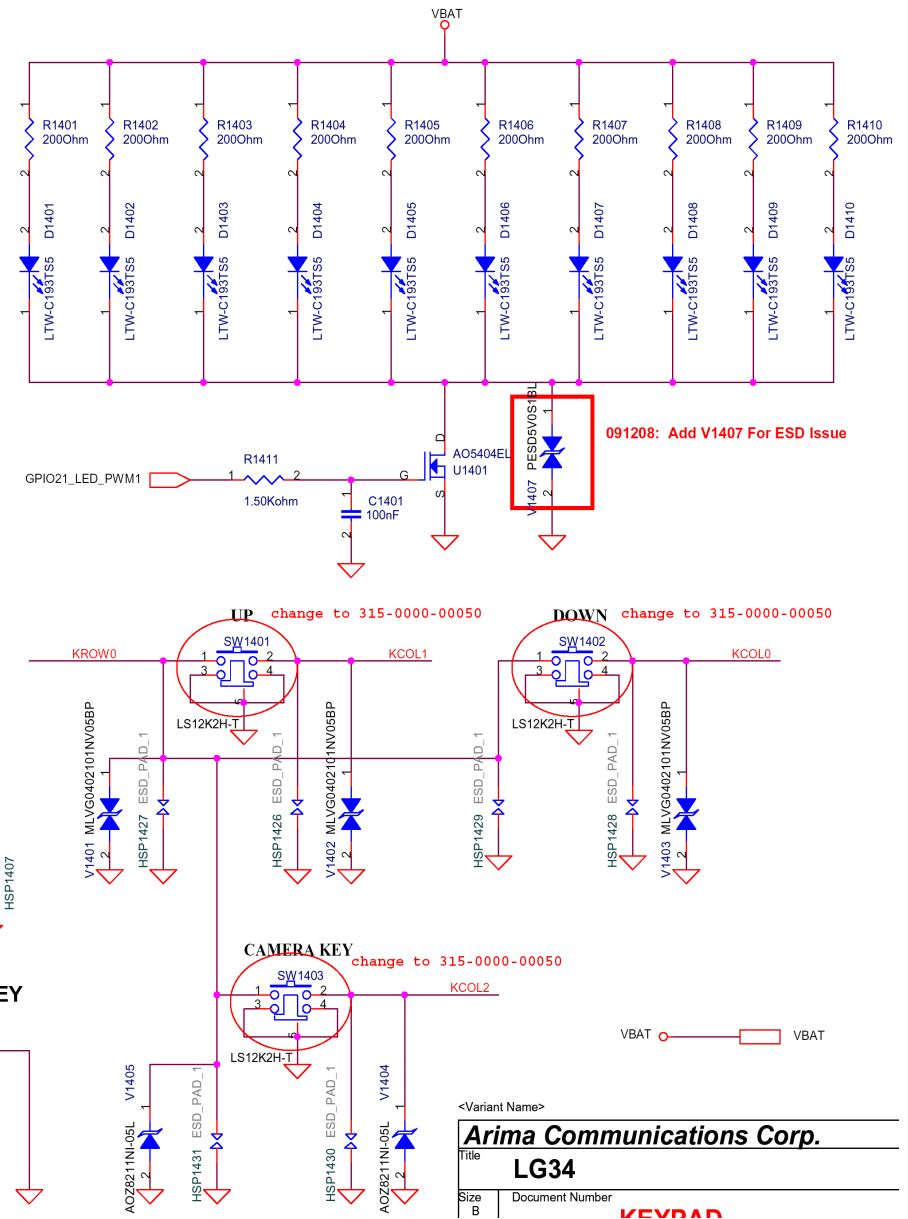
# Micro SD



FM Radio



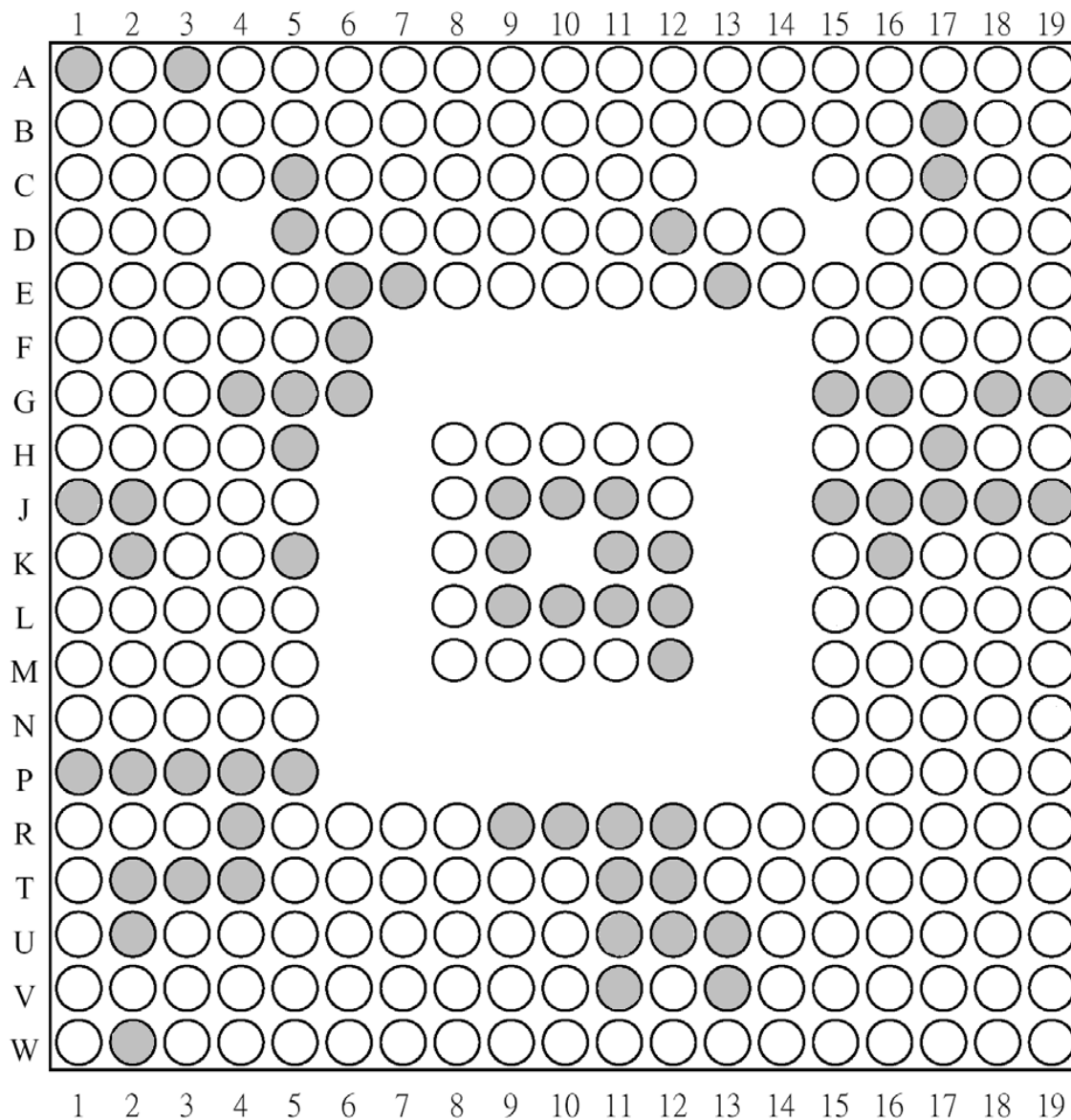
**KEYPAD LED (WHITE)**



## 8. BGA IC PIN Check

### 8.1 BGA PIN Check of main chip (MT6226M)

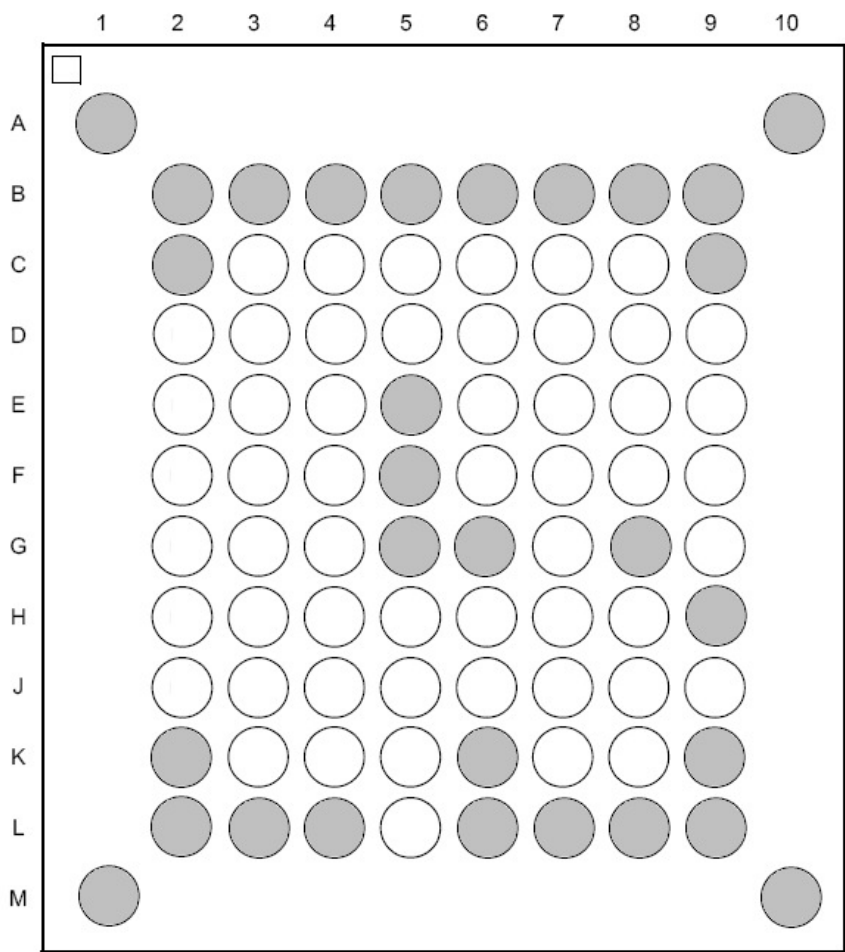
BB\_MT6226M (U401)



○ BGA use

● BGA non-use

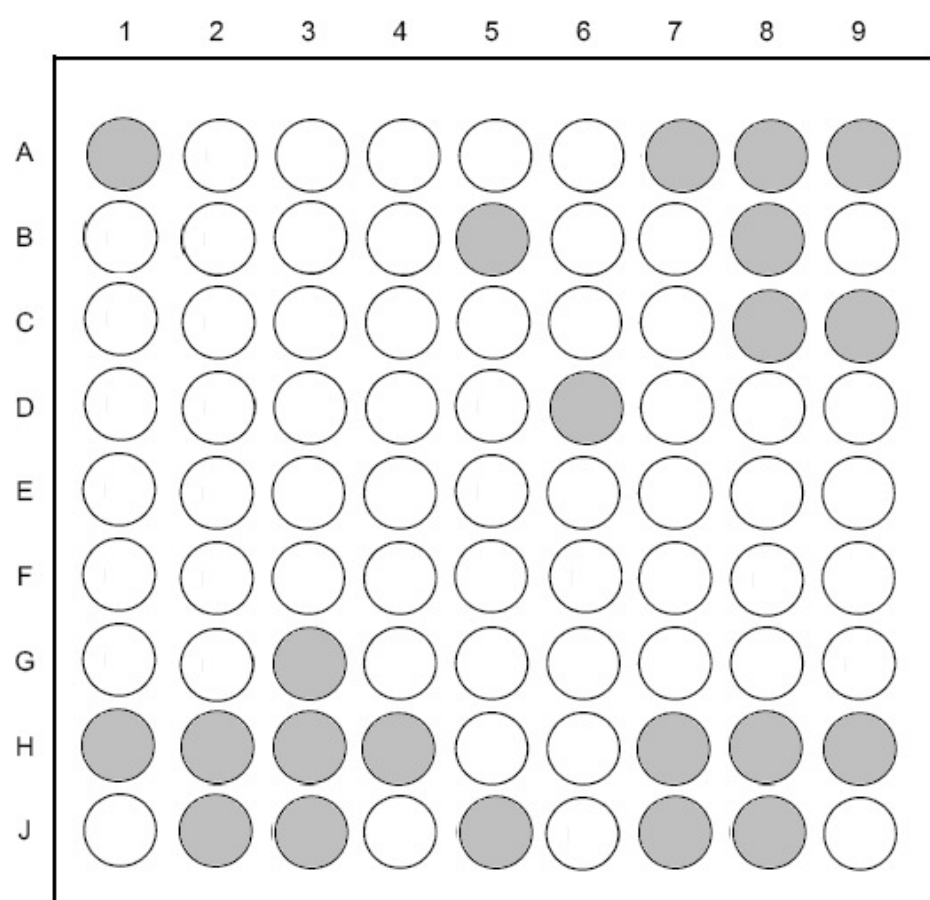
8.2 BGA PIN Check of Memory (K5L5563CAA-D770)  
K5L5563CAA-D770 (U502)



○ BGA use

● BGA non-use

### 8.3 BGA PIN Check of Bluetooth (MT6601) MT6601 (U301)

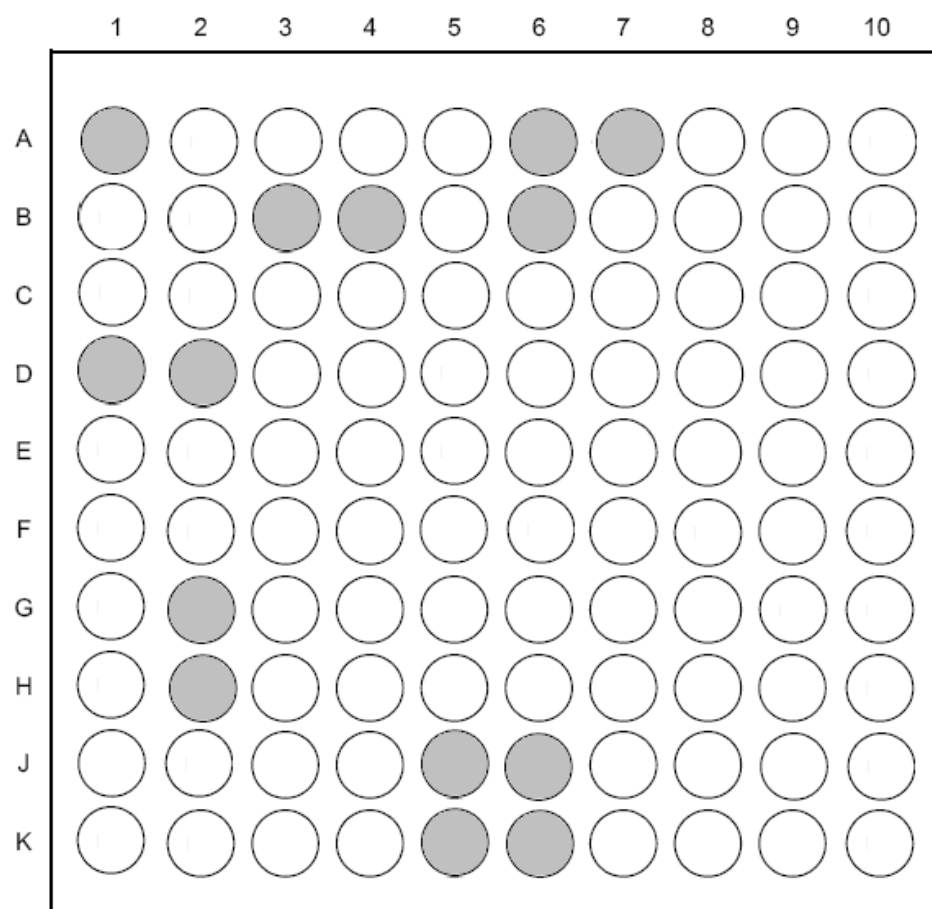


○ BGA use

● BGA non-use

## 8.4 BGA PIN Check of PMIC (MT6318)

### MT6318 (U601)

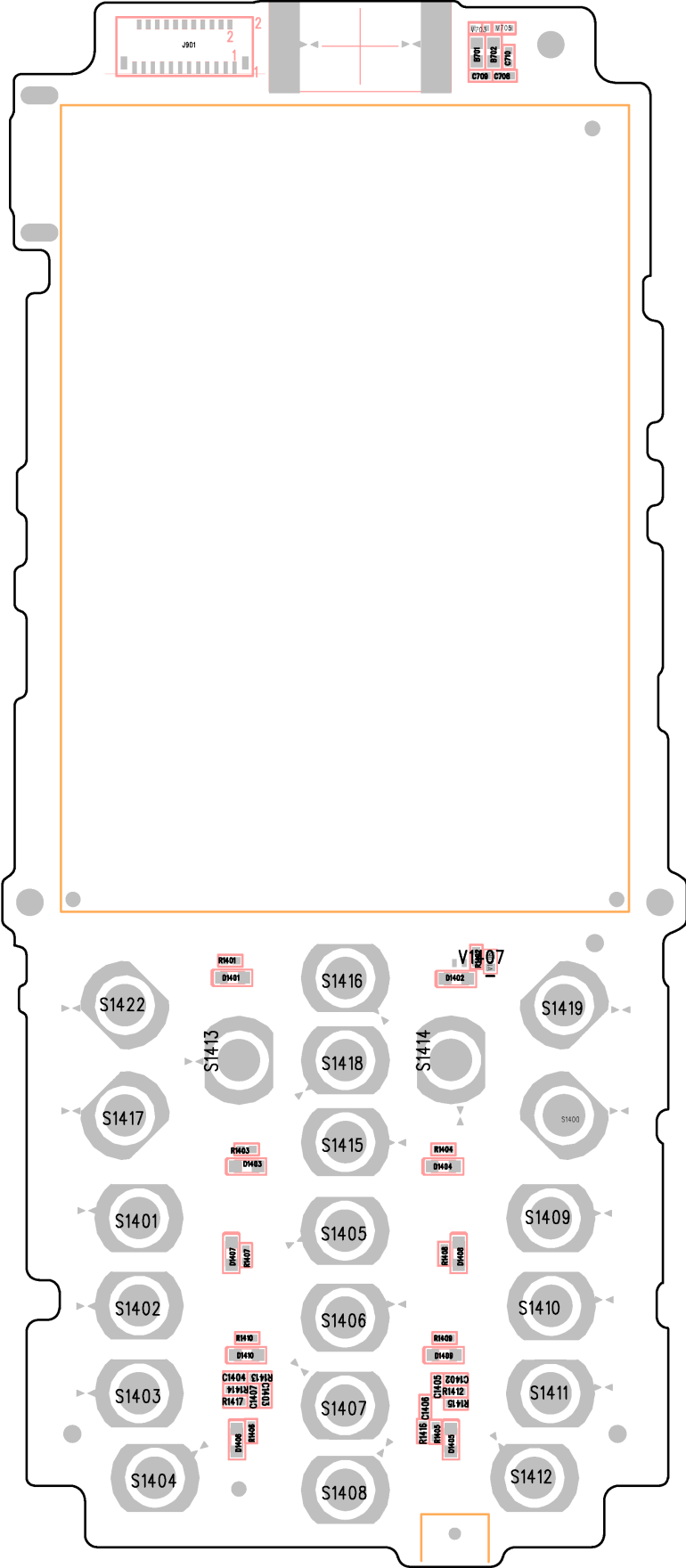


○ BGA use

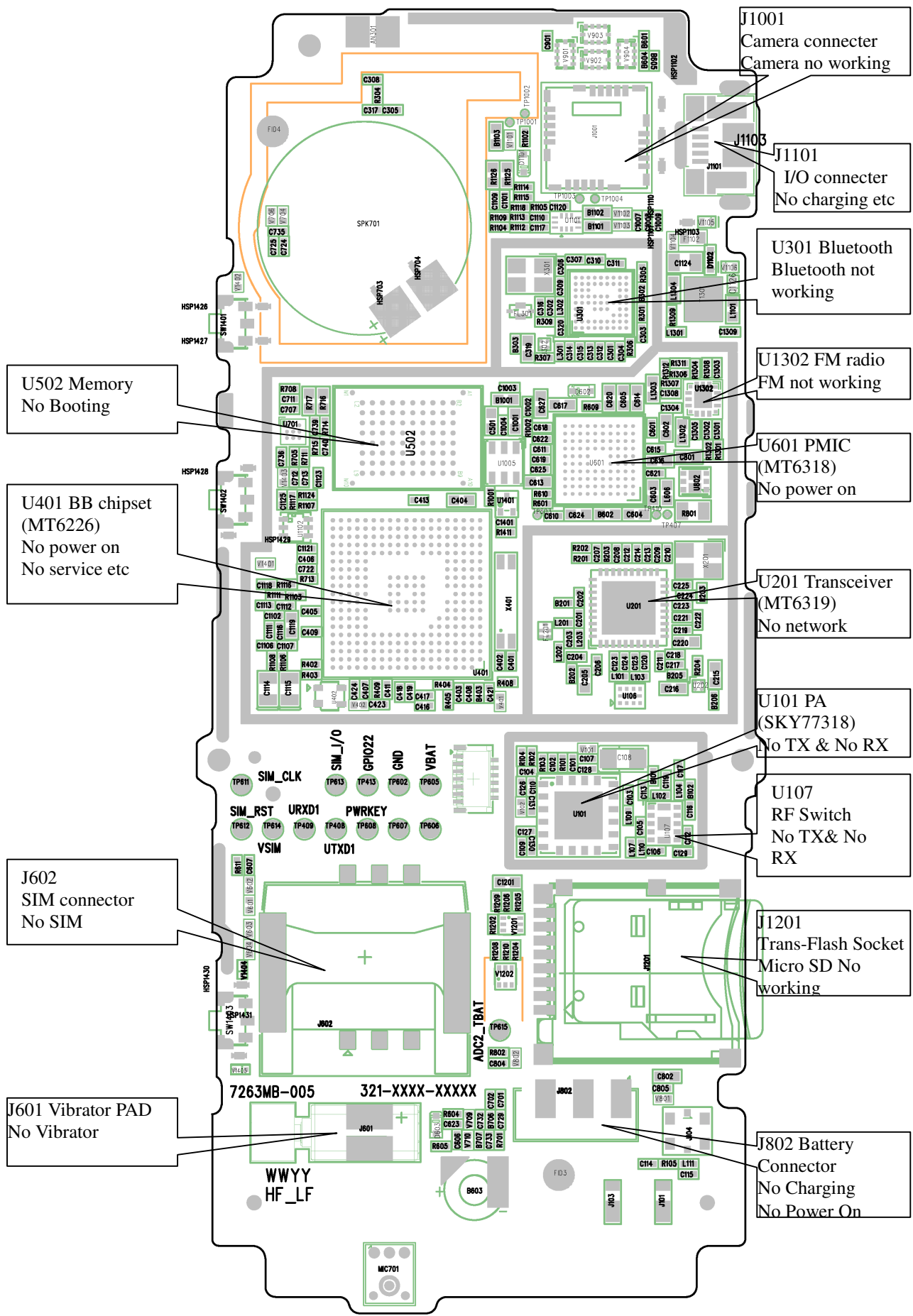
● BGA non-use



# 9. PCB LAYOUT



TOP



**Bottom**

# 10.Engineering Mode

## 1.1.Enter and Exit Engineering Mode

In idle screen, enter the Factory Mode menu by typing “\*2945#\*#”. Like normal menu operations, press Left-Soft-Key (LSK) “Back” to the previous screen or End key to go back to the idle screen.

## 1.2.Version

Version info summary: Software version number, software codebase branch, build time info.  
MCU SW: Software version number  
Melody: melody version  
Serial No. :Serial number.  
BB chip: Base band chip info.

## 1.3.Network Setting

### 1.3.1. Network Info

This function is for engineers to monitor the status of the protocol stack and interactions with the network. Use LSK ok to toggle the value of a selected item. After selection of items to monitor is complete,press RSK Back. If any settings are changed,a screen appears with “Update Parameter?”. Pressing LSK Yes saves the new values to the protocol stack;Pressing RSK NO discards all changes.These settings are not stored in NVRAM;thus the settings are lost if the handset is powered off.

Item	Function Selection	Value	Description
Network Info.	RR Cell Sel	On/Off	Radio Resource cell selection information
	RR Ch Dscr	On/Off	Radio Resource channel description information
	RR Ctrl Chan	On/Off	Radio Resource control channel information
	RR RACH Ctrl	On/Off	Radio RACH control channel information
	RR LAI Info	On/Off	Radio Resource LAI information
	RR Radio Link	On/Off	Radio Resource radio link information
	RR Meas Rep	On/Off	Radio Resource measurement report information
	CC Chan Info	On/Off	Call Control Channel information
	CC Call Info	On/Off	Call Control Call information
	CA List Info	On/Off	CA List information
	PLMN Info	On/Off	PLMN information
	GPRS Info	On/Off	GPRS information
	Si2Q/Mi Info	On/Off	Si2Q/Mi information
	TBF Status	On/Off	TBF Status
	Block Info	On/Off	Block information

### 1.3.2.Band Selelct

Item	Function Selection	Value
Band	900 MHz	ON/OFF
	1800 MHz	ON/OFF
	1900 MHz	ON/OFF
	900/1800 MHz	ON/OFF
	Auto	ON/OFF

### 1.3.3.Cell Lock

### 1.3.4.Network Events

To set the filter of Network Events (RR,SMU,TCM,RMC,PHB,PHB).

## 1.4. Device

### 1.4.1. LCD

Item	Function Selection	Value	Description
Version	Set Contrast	0-255	To set the Contrast of Main LCD.
	Set Bias Ratio	0-255	To set the Bias Ratio of Main LCD.
	Set Line rate	0-255	To set the Line Rate of Main LCD.
	Set Temperature	0-255	To set the Temperature of Main LCD.
	Set Color		To set the value of RGB.
	Display Demo Pic.		To display the picture.

The string to enter Engineering Mode can be changed in the source code.

The larger the value set in the input box ,the brighter the screen is.

### 1.4.2.GPIO

The GPIO includes List GPIO,GPIO Editor and GPO Editor.

Item	Function Selection	Value	Description
List GPO/GPIO	GPIO#5	On/Off	To switch GPIO#5 On or Off
	GPIO#13	On/Off	To switch GPIO#13 On or Off
	GPIO#14	On/Off	To switch GPIO#14 On or Off
	GPIO#15	On/Off	To switch GPIO#15 On or Off
GPIO Editor	View/Edit the state of the GPIO entered		Enter the GPIO to view and edit the state: <b>Current Level:</b> High/Low <b>Mode:</b> [0~3] <b>Direction:</b> IN/OUT
GPO Editor	View/Edit the state of the GPO entered		Enter the GPO to view and edit the state: <b>Current Level:</b> High/Low <b>Mode:</b> [0~3] <b>Direction:</b> IN/OUT

List GPO/GPIO is for predefined functional GPIOs. The setting depends on the project specification.

GPIO Editor and GPO Editor are extensive functionalities,that allow engineers to change the state of any GPIO/GPO.

### 1.4.3.PWM

There are 3 PWMs.

Item	Function Selection	Value	Description
PWM	PWM1	Freq = 0-255, Duty = 0- 100	PWM Editor shows the following info: <b>Level:</b> [1~5] <b>Frequency:</b> [0~255] <b>Duty:</b> [0~100]
	PWM2	Freq = 0-255, Duty = 0-100	PWM Editor shows the following info: <b>Level:</b> [1~5] <b>Frequency:</b> [0~255] <b>Duty:</b> [0~100]
	PWM3	Freq = 0-255, Duty = 0-100	PWM Editor shows the following info: <b>Level:</b> [1~5] <b>Frequency:</b> [0~255] <b>Duty:</b> [0~100]

1. On entry of the PWM Editor,the setting of the current level is shown. Settings of all levels can be adjusted, stored(if the ok key is pressed) and applied.

#### 1.4.4.EINT

Display External Interrupt Status. 1 means ON, 0 means OFF.

Item	Function Selection	Value	Description
EINT	Earphone 0	0/1	Plug in the Earphone to test.
	ClamShell 0	0/1	TO test Clamshell.
	Charger 0	0/1	Plug in the Charger to test.
	NC 0	0/1	To test NC.
	Bluetooth 0	0/1	Power the Bluetooth to test.
	Cable 0	0/1	Plug in the Cable to test.
	CapSense 0	0/1	To test CapSense.

#### 1.4.5.ADC

Display the ADC value. The ADC value is displayed and updated every 1 second on this screen.

Item	Function Selection	Value	Description
ADC	VBAT	XX.XX(V)	Battery voltage
	Current	XX.XX(A)	Charging current
	NC	XX.XX(C)	Battery Temperature
	NC	XX.XX(V)	Headset send key
	VChgr	XX.XX(V)	Charger voltage

#### 1.4.6.Set Default Level

Item	Function Selection	Value	Description
Main LCD Contrast	LEVEL1-15	0-255	To set the contrast of 15 levels of Main LCD.
Battery	LEVEL 1	0-9999999	Voltage below LEVEL 1 powers off automatically.
	LEVEL 2	0-9999999	Voltage below LEVEL 2 prohibits MO calls.
	LEVEL 3	0-9999999	Voltage below LEVEL 3 pops up a warning screen.
	LEVEL 4	0-9999999	Voltage below LEVEL 4 displays battery status icon with 0 level(empty).
	LEVEL 5	0-9999999	Voltage below LEVEL 5 displays battery status icon with 1 level.
	LEVEL 6	0-9999999	Voltage below LEVEL 5 displays battery status icon with 2 level.
	LEVEL 7	0-9999999	Voltage above LEVEL 6 displays battery status icon with 3 level(full).
	LEVEL 8-10	9999999	Reserved,should be 9999999.
PWM 1	Freq 1-5	0-255	Frequency of PWM for 5 levels.
	Duty 1-5	0-100	Duty Cycle of PWM for 5 levels.
PWM 2	Freq 1-5	0-255	Frequency of PWM for 5 levels.
	Duty 1-5	0-100	Duty Cycle of PWM for 5 levels.
PWM 3	Freq 1-5	0-255	Frequency of PWM for 5 levels.
	Duty 1-5	0-100	Duty Cycle of PWM for 5 levels.

1. All settings are saved in NVRAM when the user presses LSK ok on the confirmation screen "Update Parameters?"

#### 1.4.7.Set UART

Change the UART setting for AT Command. If AT Command is set to UART1, then TST2 is set to UART2. If AT Command is set to UART2, then TST is set to UART1.

The UART POWER ON/OFF is for selection of UART1/2/3 on or off.

#### 1.4.8.Sleep Mode

Enable or disable sleep mode.

#### 1.4.9.DCM Mode

Enable or disable sleep mode.

#### 1.4.10.PMIC 6318

To test the chip of PMIC 6318.

#### 1.4.11.FM Radio

Item	Function Selection	Value	Description
FM Radio	MONO	Disable/Enable	To Power on/off MONO
	STEREO	Disable/Enable	To Power on/off STEREO
	RSSI	Level1~6	To set the signal level
	If Count Delta	10,15,20,25,30 KHz	To set the frequency increment value
	RSSI Info.		To display the signal information

#### 1.4.12.RTC XOSC(WO)

To set RTC frequency.

### 1.5.Audio

#### 1.5.1.Normal Mode, LoudSp Mode, Headset Mode

Five types of audio settings can be set.

Item	Function Selection	Value	Description
FIR		0-5	Set the 6 levels for FIR
Speech	0-6	0-255	Set the 7 volume levels for Speech
Key tone	0-6	0-255	Set the 7 volume levels for Key tone
Melody	0-6	0-255	Set the 7 volume levels for Melody
Sound	0-6	0-255	Set the 7 volume levels for Sound
Microphone	0-6	0-255	Set the 7 volume levels for Microphone
Side tone	Only one level	0-255	Set the gain of the Side tone

1.The preset value is read from NVRAM when entering Normal Mode.

2.To change the volume,use the up and down keys.use LSK set to set the value(not yet stored to NVRM).

3.On exiting Normal Mode, a confirmation screen "Update Parameter?"appears. Pressing LSK yes stores the setting to NVRAM.Pressing RSK no discards all changes and returns the user to the Audio screen.

4.Only the active volume level gain of the active mode is set to the hardware register.For example: If the MS is in Normal Mode and the current speech volume level is LEVEL4,updating the parameter sets the gain value of LEVEL4 of Speech to the hardware register.

5.To change the current volume level of Speech ,use side key when in call.

6.To change the current volume level of Key tone,use side key when in idle screen.

7.To change the current level of Ring tone,enter User Profiles->[Active

Mode]->Customize->Volume->Ring tone to change volume.

8.The parameters of Headset Mode are applied only when the headset is plugged in.

9.The parameters of LoudSp Mode are applied only when handsfree is turned on during a call.

#### 1.5.2.Ring Tone

This audio setting is used to demonstrate all melodies on the MS,including iMelodies,Midis and Sounds(MIDI format). Use the up and down keys to scroll over the ring tones: highlighting a selection longer than one second plays the ring tone.

#### 1.5.3.Speech Enhancement

You can set the Common Parameters 0~7.

There are 8 Mode for selection :Normal Mode,Headset Mode,LoudSp Mode,BT Earphone Mode,BT Cordless Mode,AUX1 Mode,AUX2 Mode,AUX3 Mode. The 8 Mode have 0~15 parameter to set.

#### 1.5.4.Max Swing

This setting sets the maximum swing value.

#### 1.5.5.Debug Info

The setting sets the Debug information parameter :0~15.

#### 1.5.6.Auto Record Setting

The Setting includes: VM Support, Auto Speech Record.

You can turn on/off them.

### **1.6.GPRS Activation**

This menu is for GPRS mode test only (if supported).

#### 1.6.1.Attach

To start GPRS attach.

#### 1.6.2.Activate PDP

To activate GPRS PDP context1-15.

#### 1.6.3.Deactivate PDP

To deactivate GPRS PDP context.

#### 1.6.4.Send Data

To send data over GPRS connection.

#### 1.6.5.PING

N/A.

## 1.7. Misc

This screen contains othe miscellaneous settings.

This screen contains the miscellaneous settings.

Item	Function Selection	Description	
Auto Answer	ON/OFF	To toggle on or off the Auto Answer function.	
High Speed SIM	ON/OFF	To toggle on or off the High Speed SIM test.	
PWR Duration		To show the power-on time,the current time and the duration.	
Backlight Mode	ON/OFF	To toggle on or off for Backlight functin.	
Detection Mode		To generate an ASSERT fail.In production release,the system Powers on silently in the exception of power-on mode.	
Assert Testing	ON/OFF for UART1,2,3	To enable or disable UART detection mode.	
RAM Test			
Memory Dump	ON/OFF	To switch between ON and OFF for Memory Dump information in the system service layer.	
MMI Debug	ON/OFF	To switch between ON and OFF for MMI debug level.	
AMR	ON/OFF	To enable or disable AMR.	
WAP	WAP related settings	Sub-Item	Description
		User Agent	To choose among listed user agents
		Accept Header	To choose among listed header types
		MMS Version	To choose among different versions for testing
J2ME TCK	J2ME TCK testing	To choose among the listed TCKs.	
Video High Bitrate	ON/OFF	To enable or disable Video High Bitrate.	
Cell Reselection		To profile Cell Reselection.	
JAVA Heap Size		To Select JAVA Heap Size.	
Software Tracer		To trace the software.	

## 1.8.Auto Test List

This helper function for Factory Mode Auto Test provides interfaces for the following:

1. To view the current auto test list;
2. To add a test to the list;
3. To remove a test from the list;
4. To change the priority of a test in the list, i.e. to adjust the order of test items in the list.

## 1.9.PWR Down Control

To set the power down control for Con0,Con2 and Con3.

## 1.10.SW PATCH SELECT

To test the SW By selecting SW PATCH to execute.

## 1.11.Debug Info

Item	Function Selection	Description
Last Exception	Read	To read and display information about the last exception.
System Stats	Write	To write stats.
Drive Letter	Read	To read and display information about Drive Letter.



## 1.12. Socket Test

Four applications test the functionality of socket.

Item	Function Selection	Description
DNS	DNS query	To resolve a domain name to IP address. The domain name is user- specified.
HTTP	HTTP download	To obtain and display the web page. The webpage URL is specified by the user.
Echo	Echo	To send a string to and display the response from the echo server. The string and IP address of the echo server are specified by the user.
Date	Date and time query	To obtain the current date and time by querying the datetime server. The IP address of datetime server is specified by the user.

### 1.12.1. Socket Test Menu

When the users enters in Engineer Mode and selects the Socket Test submenu, the Socket Test menu screen is shown.

#### 1.12.1.1. Predecessor

Engineer Mode menu.

#### 1.12.1.2. Possible Input and Followed Operations

Key Type	Input Type	Operation	Condition	Followed Section
1	P	Shortcut to the DNS Query submenu.		1.11.2
2	P	Shortcut to the HTTP Get submenu.		1.11.3
3	P	Shortcut to the ECHO submenu.		1.11.4
4	P	Shortcut to the Date Query submenu.		1.11.5
0,4-9,*,#				
↑,Side ↑	P	Scroll up one item.		
↓,Side ↓	P	Scroll down one item.		
←				
→				
LSK "Ok"	R	Go to the highlighted menu item.		
RSK "Back"	R	Go back to the Engineer Mode menu.		
SEND				
END	LP	Power off the phone.		
END	P	Return to the Idle screen.		

#### 1.12.1.3. Interrupt Handling

Interrupt Type	Corresponding Operation	Operation after Interrupt Handling
Incoming Call	Standard handling	Restore the screen before the interrupt.
Incoming CCBS Invoke	Standard handling	Restore the screen before the interrupt.
Incoming SMS	Standard handling	Restore the screen before the interrupt.
Incoming Voice Mail	Standard handling	Restore the screen before the interrupt.
Incoming CB Message	Standard handling	Restore the screen before the interrupt.
Charger Plug In	Standard handling	Restore the screen before the interrupt.
Earphone Plug In	Standard handling	Restore the screen before the interrupt.
Alarm Expired	Standard handling	Restore the screen before the interrupt.
Battery Low	Standard handling	Restore the screen before the interrupt.
Incoming SS	Standard handling	Restore the screen before the interrupt.
Incoming NITZ	Standard handling	Restore the screen before the interrupt.

#### 1.12.1.4. Detailed Description

The Socket Test menu offers four submenus to verify the functionality of the socket.

1. DNS Query: To resolve a user-specified domain name to IP address.
2. HTTP GET: To get and display a web page. The webpage URL is user-specified.
3. ECHO: To send a string to and display the response from the echo server. The string and IP address of the echo server are user-specified.
4. Date Query: To get current date and time by querying the datetime server. The IP address of the datetime server is user-specified.

#### 1.12.2.DNS Query

The DNS Query operation resolves a user-specified domain name to an IP address and displays the result to the user.

##### 1.12.2.1.Predecessor

Socket Test menu

##### 1.12.2.2. Possible Input and Followed Operations

Key Type	Input Type	Operation	Condition	Followed Section
0-9,*,#	P	Input characters.		
↑,Side ↑				
↓,Side ↓				
←	P	Move the cursor one position left.		
→	P	Move the cursor one position right.		
LSK "Option"	R	Go to the option menu.		
RSK "Back"	R	Return to the Socket Test menu.	(1)	1.11.1
RSK "Clear"	R	Delete a single character at the current location of the cursor.	(2)	
RSK "Clear"	LP	Delete all input characters.	(3)	
SEND				
END	LP	Power off the phone.		
END	P	Return to the Idle screen.		

Input Type: P=Press, R=Release, LP=Long Press

Condition: (1) No input characters

(2) Input characters exist

##### 1.12.2.3. Interrupt Handling

Interrupt Type	Corresponding Operation	Operation after Interrupt Handling
Incoming Call	Standard handling	Restore the screen before the interrupt.
Incoming CCBS Invoke	Standard handling	Restore the screen before the interrupt.
Incoming SMS	Standard handling	Restore the screen before the interrupt.
Incoming Voice Mail	Standard handling	Restore the screen before the interrupt.
Incoming CB Message	Standard handling	Restore the screen before the interrupt.
Charger Plug In	Standard handling	Restore the screen before the interrupt.
Earphone Plug In	Standard handling	Restore the screen before the interrupt.
Alarm Expired	Standard handling	Restore the screen before the interrupt.
Battery Low	Standard handling	Restore the screen before the interrupt.
Incoming SS	Standard handling	Restore the screen before the interrupt.
Incoming NITZ	Standard handling	Restore the screen before the interrupt.

##### 1.12.2.4. Detailed Description

When the user selects the DNS Query submenu item from the Socket Test menu, the DNS Query screen appears and prompts the user to input the domain name to be resolved.

In the DNS Query screen the user enters a domain name to be resolved.

- 1.If no characters are input, RSK is labeled BACK and pressing RSK returns the user to the Socket Test menu screen.
- 2.If input characters exist, RSK becomes CLEAR and pressing RSK deletes one single character at the location of the cursor.
- 3.Pressing LSK OPTION takes the user to the Option menu, described in the following screen.

After pressing LSK OPTION in the DNS Query screen, the Option menu is shown.

- 1.Done: To start the DNS query process, as shown in the next screen.
- 2.Input Method: Allows the user to choose their preferred input method. After selecting the input method, the user is taken back to the DNS Query screen to continue entering the domain name.
- 3.Pressing LSK OK proceeds with the highlighted menu item.
- 4.Pressing RSK BACK returns the user to the DNS Query screen.

After selecting Done in the Option menu, the DNS query process starts and a progress screen is shown to indicate that the DNS query is in progress.

- 1.Pressing RSK CANCEL cancels the DNS query process and takes the user back to the DNS Query screen.
- 2.Pressing the END key cancels the DNS query process and takes the user back to the idle screen.

If the DNS query process fails, an error message appears indicating the cause of failure and the user is returned to the DNS Query screen or taken to the Socket Test menu, depending on the failure cause.

If the DNS query process is successful, the result is shown to the user.

Pressing RSK BACK takes the user back to the Socket Test menu.

#### 1.12.3. HTTP Get

The HTTP Get function obtains and displays a web page. The URL of web page is specified by the user.

##### 1.12.3.1. Predecessor

Socket Test menu

##### 1.12.3.2. Possible Input and Followed Operations

Key Type	Input Type	Operation	Condition	Followed Section
0-9,*,#	P	Input characters.		
↑,Side ↑				
↓,Side ↓				
←	P	Move cursor one position left.		
→	P	Move cursor one position right.		
LSK "Option"	R	Go to option menu.		
RSK "Back"	R	Return to the Socket Test menu.	(1)	1.11.1
RSK "Clear"	R	Delete a single character at the current location of the cursor.	(2)	
RSK "Clear"	LP	Delete all input characters.	(2)	
SEND				
END	LP	Power off the phone.		
END	P	Go to the Idle screen.		

Input Type: P=Press, R=Release, LP=Long Press

Condition: (1) No input characters

(2) Input characters exist

### 1.12.3.3. Interrupt Handling

Interrupt Type	Corresponding Operation	Operation after Interrupt Handling
Incoming Call	Standard handling	Restore the screen before the interrupt.
Incoming CCBS Invoke	Standard handling	Restore the screen before the interrupt.
Incoming SMS	Standard handling	Restore the screen before the interrupt.
Incoming Voice Mail	Standard handling	Restore the screen before the interrupt.
Incoming CB Message	Standard handling	Restore the screen before the interrupt.
Charger Plug In	Standard handling	Restore the screen before the interrupt.
Earphone Plug In	Standard handling	Restore the screen before the interrupt.
Alarm Expired	Standard handling	Restore the screen before the interrupt.
Battery Low	Standard handling	Restore the screen before the interrupt.
Incoming SS	Standard handling	Restore the screen before the interrupt.
Incoming NITZ	Standard handling	Restore the screen before the interrupt.

### 1.12.3.4. Detailed Description

When the user selects HTTP Get from the Socket Test menu, the HTTP Get screen prompts the user for a web URL.

In HTTP Get screen, the user inputs the URL of the web page to retrieve.

- 1.If no character are input, RSK is labeled BACK and pressing RSK takes the user back to the Socket Test menu.
- 2.If characters have been input, RSK is CLEAR and pressing RSK deletes one single character at the location of the cursor.
- 3.Pressing LSK OPTION takes the user to the Option menu, as shown follows.

Pressing LSK OPTION in the HTTP Get screen brings up the Option menu.

- 1.Done: To start the HTTP Get process, as shown in the next screen.
- 2.Input Method: Allows the user to choose their preferred input method. After selecting the input method, the user is taken back to the HTTP Get screen to continue entering the URL.
- 3.Pressing LSK OK proceeds with the highlighted menu item.
- 4.Pressing RSK BACK returns the user back to the HTTP Get screen.

After selecting Done in the Option menu, the HTTP get process starts and a progress screen is shown to indicate that the HTTP get process is in progress.

- 1.Pressing RSK CANCEL cancels the HTTP get process and returns the user to the HTTP Get screen.
- 2.Pressing the END key cancels the HTTP get process and returns the user to the idle screen.

If the HTTP get process fails, an error message appears indicating the cause of failure and the user is returned to the HTTP Get screen or to the Socket Test menu, depending on the failure cause.

If the HTTP get process is successful, the result is shown to the user.

Pressing RSK BACK takes the user back to the Socket Test menu.

### 1.12.4.ECHO

The ECHO operation sends a string, input by the user, to an echo server and displays the response from the server. The echo string and IP address of the echo server are specified by the user.

#### 1.12.4.1.Predecessor

Socket Test menu

#### 1.12.4.2.Possible Input and Followed Operations

Key Type	Input Type	Operation	Condition	Followed Section
0-9	P	Input numbers	(1)	
*,#				
↑,Side ↑	P	Scroll up one item.		
↓,Side ↓	P	Scroll down one item.		
←	P	Move cursor to one left position	(1)	
→	P	Move cursor to one right position	(1)	
LSK "Edit"	R	Go to Echo String screen.	(2)	
RSK "Back"	R	Go back to Socket Test menu	(3)	1.11.1
RSK "Done"	R	Pop up confirm window	(4)	
SEND				
END	LP	Power off phone.		
END	P	Go to Idle screen.		

Input Type: P=Press, R=Release, LP=Long Press

Condition: (1) Inline item of input of Server IP is highlighted.

(2) Inline item of input of Echo String is highlighted.

(3) No input characters

(4) Input characters exist

#### 1.12.4.3. Interrupt Handling

Interrupt Type	Corresponding Operation	Operation after Interrupt Handling
Incoming Call	Standard handling	Restore the screen before the interrupt.
Incoming CCBS Invoke	Standard handling	Restore the screen before the interrupt.
Incoming SMS	Standard handling	Restore the screen before the interrupt.
Incoming Voice Mail	Standard handling	Restore the screen before the interrupt.
Incoming CB Message	Standard handling	Restore the screen before the interrupt.
Charger Plug In	Standard handling	Restore the screen before the interrupt.
Earphone Plug In	Standard handling	Restore the screen before the interrupt.
Alarm Expired	Standard handling	Restore the screen before the interrupt.
Battery Low	Standard handling	Restore the screen before the interrupt.
Incoming SS	Standard handling	Restore the screen before the interrupt.
Incoming NITZ	Standard handling	Restore the screen before the interrupt.

#### 1.12.4.4. Detailed Description

When the user selects the ECHO submenu item from the Socket Test menu, the ECHO screen appears and prompts the user to input an echo server IP and echo string.

When the Server IP inline item is highlighted, the user can enter the echo server's IP address.

When the Echo String inline item is highlighted, the user can press LSK EDIT to enter the Echo String screen to input string to be echoed.

1. If no characters are input, RSK is labeled BACK and pressing RSK returns the user to Socket Test menu.

2. If input characters exist, RSK is labeled DONE and pressing RSK invokes a confirmation window.

In the Echo String screen, the user inputs the string to be echoed back from the server.

1. If no characters are input, RSK is labeled BACK and pressing RSK returns the user to the ECHO Screen.

2. If input characters exist, RSK is CLEAR and pressing RSK deletes one single character at the location of the cursor.

3. Pressing LSK OPTION takes the user to the Option menu, described in the following screen.

After pressing LSK OPTION in the Echo String screen, the Option menu is shown.

1. Done: Finishes input of the echo string. The user is taken back to the ECHO screen.
2. Input Method: Allows the user to choose their preferred input method. After selecting the input method, the user is taken back to the Echo String screen to continue entering the echo string.

3. Pressing LSK OK proceeds with the highlighted menu item.

4. Pressing RSK BACK returns the user to the Echo String screen.

After pressing RSK DONE in the ECHO screen, a window asks the user to confirm execution of the ECHO process.

1. Pressing LSK YES proceeds to the progress screen, described next.

2. Pressing RSK NO returns the user to the Socket Test menu.

After selecting LSK YES when the confirmation window appears, the ECHO process starts and a progress screen indicates that the ECHO process is in progress.

1. Pressing RSK CANCEL cancels the ECHO process and takes the user back to the ECHO screen.

2. Pressing the END key cancels the ECHO process and takes the user back to the idle screen.

If the ECHO process fails, an error message appears indicating the cause of failure and the user is returned to the ECHO screen or taken to the Socket Test menu, depending on the failure cause.

If the ECHO process is successful, the result is shown to the user.

Pressing RSK BACK takes the user back to the Socket Test menu.

#### 1.12.5.Date Query

The Date Query function retrieves the current date and time by querying the datetime server. The IP address of the datetime server is specified by the user.

##### 1.12.5.1.Predecessor

Socket Test menu

##### 1.12.5.2.Possible Input and Followed Operations

Key Type	Input Type	Operation	Condition	Followed Section
0-9	P	Input numbers		
*,#				
↑,Side ↑				
↓,Side ↓				
←,→				
RSK "Back"	R	Go back to Socket Test menu	(1)	1.11.1
RSK "Done"	R	Pop up confirm window	(2)	
SEND				
END	LP	Power off phone.		
END	P	Go to Idle screen.		

Input Type: P=Press, R=Release, LP=Long Press

Condition: (1) No input numbers

(2) Input numbers exist

##### 1.12.5.3.Interrupt Handling

Interrupt Type	Corresponding Operation	Operation after Interrupt Handling
Incoming Call	Standard handling	Restore the screen before the interrupt.
Incoming CCBS Invoke	Standard handling	Restore the screen before the interrupt.
Incoming SMS	Standard handling	Restore the screen before the interrupt.
Incoming Voice Mail	Standard handling	Restore the screen before the interrupt.
Incoming CB Message	Standard handling	Restore the screen before the interrupt.
Charger Plug In	Standard handling	Restore the screen before the interrupt.
Earphone Plug In	Standard handling	Restore the screen before the interrupt.
Alarm Expired	Standard handling	Restore the screen before the interrupt.
Battery Low	Standard handling	Restore the screen before the interrupt.
Incoming SS	Standard handling	Restore the screen before the interrupt.
Incoming NITZ	Standard handling	Restore the screen before the interrupt.

#### 1.12.5.4. Detailed Description

When the user selects the Date Query submenu item from the Socket Test menu, the Date Query screen appears.

In the Date Query screen, the user can enter the IP address of the datetime server.

1. If no characters are input, RSK is labeled BACK and pressing RSK returns the user to the Socket Test menu.

2. If input characters exist, RSK is DONE and pressing RSK invokes a confirmation window.

After pressing RSK DONE in the Date Query screen, a window asks the user to confirm execution of the Date Query process.

1. Pressing LSK YES proceeds to the progress screen, described next.

2. Pressing RSK NO returns the user to the Socket Test menu.

After selecting LSK YES when the confirmation window appears, the Date Query process starts and a progress screen indicates that the Date Query process is in progress.

1. Pressing RSK CANCEL cancels the Date Query process and takes the user back to the Date Query screen.

2. Pressing the END key cancels the Date Query process and takes the user back to the idle screen.

If the Date Query process fails, an error message appears indicating the cause of failure and the user is returned to the Date Query screen or taken to the Socket Test menu, depending on the failure cause.

If the date query process is successful, the result is shown to user.

Press RSK BACK takes the user back to the Socket Test menu.

### 1.13. Bluetooth

To test the Bluetooth Module.

Item	Function Selection	Value	Description
Bluetooth	General Test	Press OK to Start testing	To do the General Test
	Bluetooth RF Test	Press OK to Start testing	To test the Bluetooth RF
	Get Chip Version	Press OK	To get the Chip Version
	Bluetooth UPF Test	Press OK to Start testing	To test Bluetooth UPF

## 1.14. Profiling

To test the Multimedia module. Press LSK OK to enter the Multimedia test screen.

Item	Function Selection	Value	Description
Multimedia	Auto Play Files	Press OK	To select a folder from File Manager. And start to auto play the files
	Camera	Press OK	To test the Camera
	Video Player	Press OK	To select a video from File Manager. And start to test Video Player
	Video Recorder	Press OK	To start testing Video Recorder

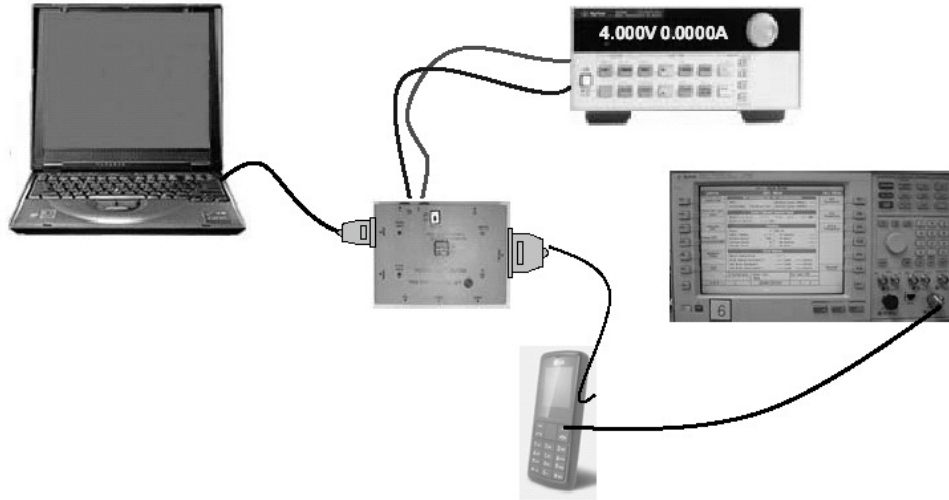
## 1.15. RF Test Tool

To test the RF. Press LSK OK and begin to test the RF.



# 11.CALIBRATION

## 11.1 Test Equipment set up



## 11.2 Calibration Steps

### Environment Requirement:

OS:

MS Windows 2000 or XP

Hardware:

Generic Pentium III or above PC (256M RAM or above)

GPIO Card

- National Instruments GPIO device and driver
- Agilent GPIO card and driver
- KEITHLEY GPIO card and driver

Radio Communication Tester

- Rohde & Schwarz CMU 200
- Agilent 8960
- Anritsu MT8820
- Rohde & Schwarz CMD55
- Willtek WT4400
- Agilent N4010A (for Bluetooth test)
- Rohde & Schwarz CBT (for Bluetooth test)
- Anritsu MT88852 (for Bluetooth test)

DC Power Supply

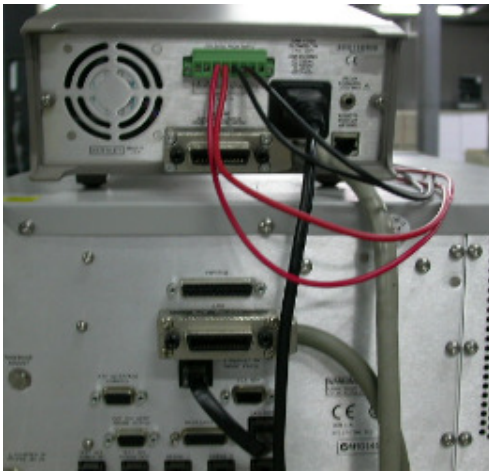
- Agilent 661x or Agilent 663x2 series power supply
- R&S NGSM Power Supply
- KEITHLEY 2303, 2304, 2306
- Agilent 3631A power supply
- Willtek WT4400 power supply option

Others

USB download cable  
Dummy battery  
RF cable

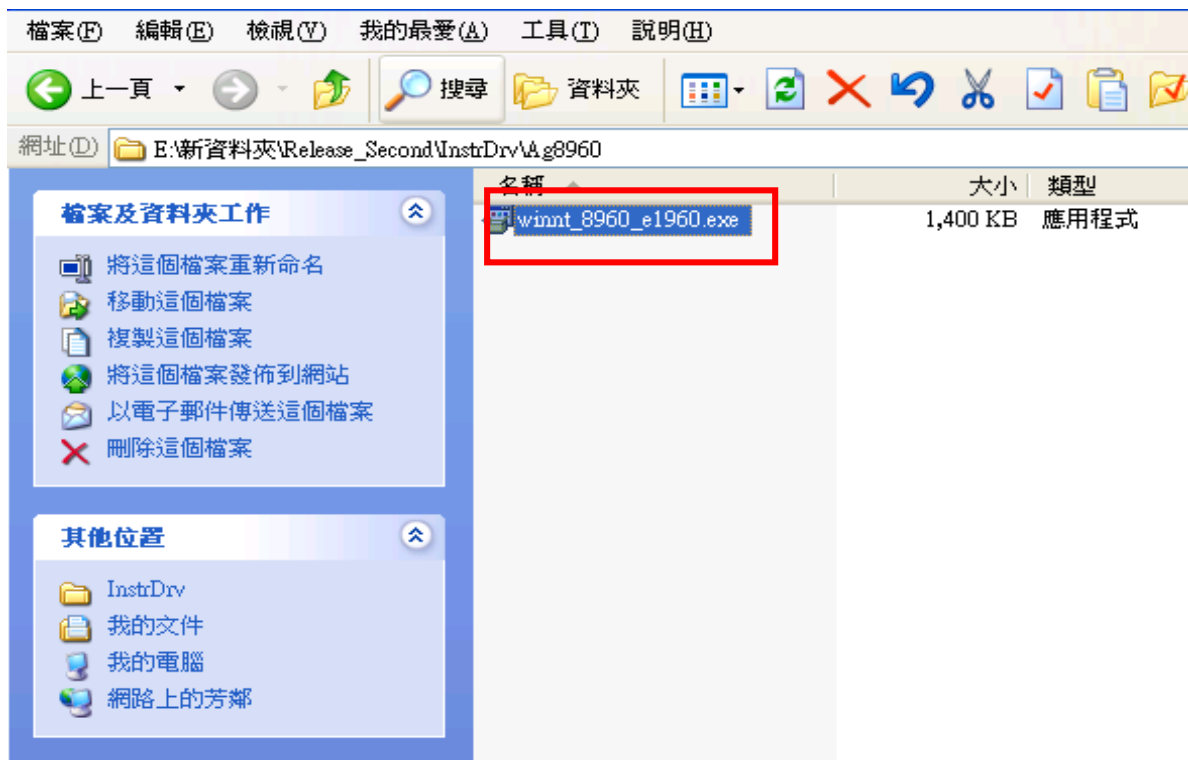
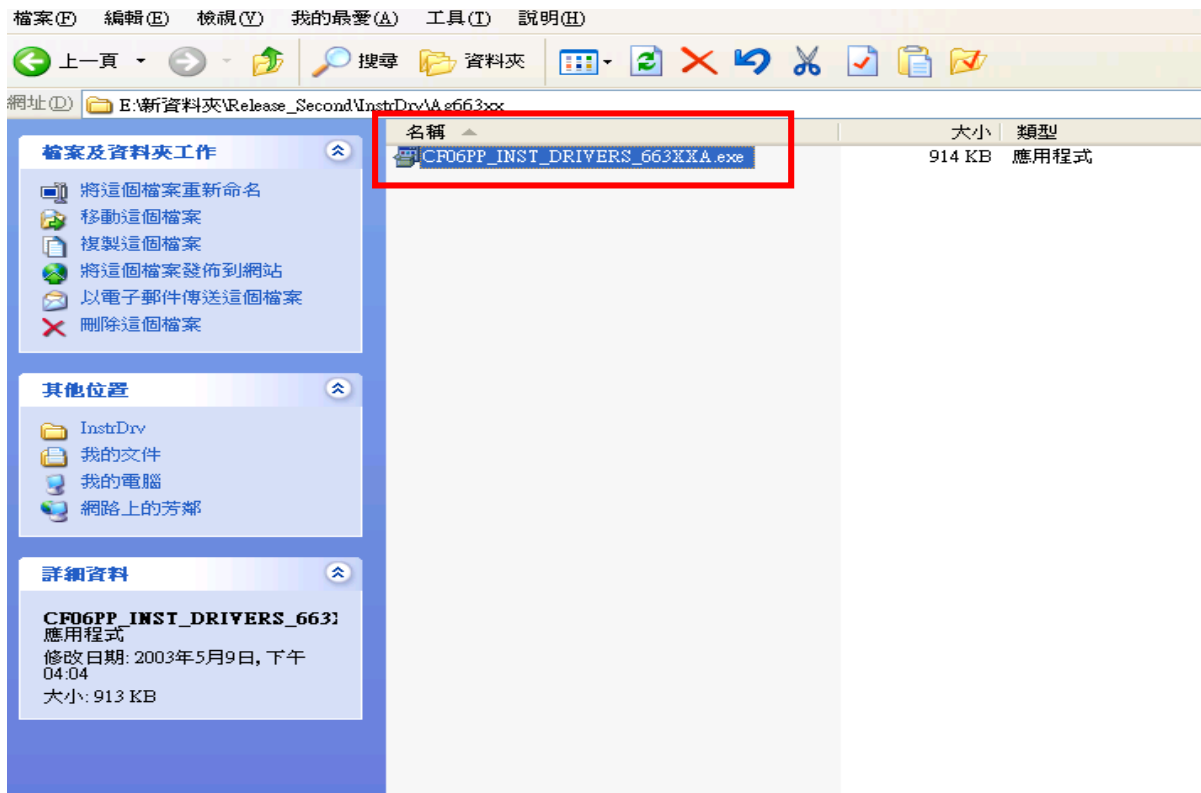
The following diagrams depict the system setups when using the Agilent test platform.

Connect 8960, power supply , computer ,phone



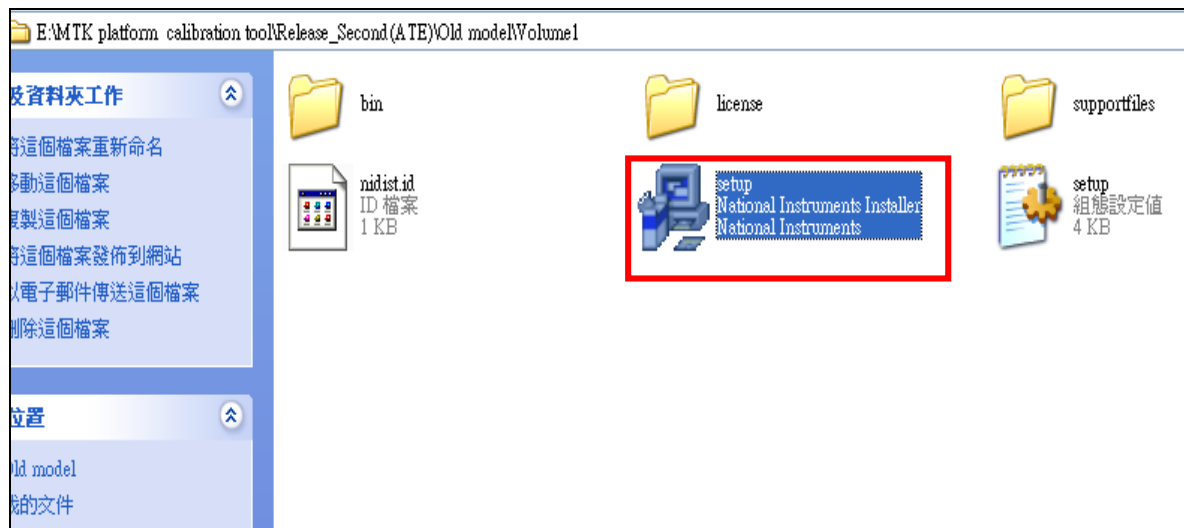
When install the MTK ATE tool, first install driver.

In turn execute [CF06PP\\_INST\\_DRIVERS\\_663XXA.exe](#), [winnt\\_8960\\_e1960.exe](#), [230x-850a01.exe](#).

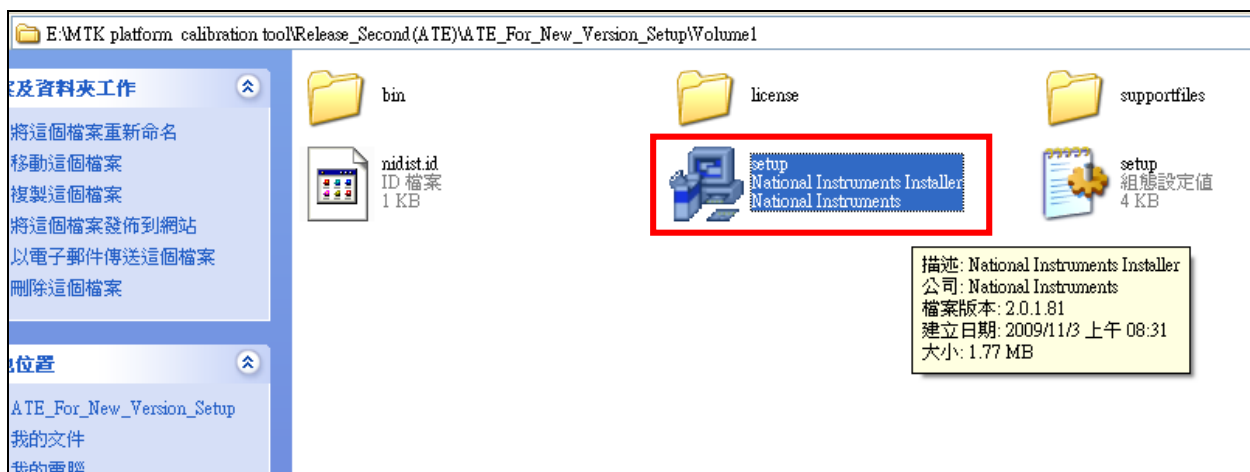




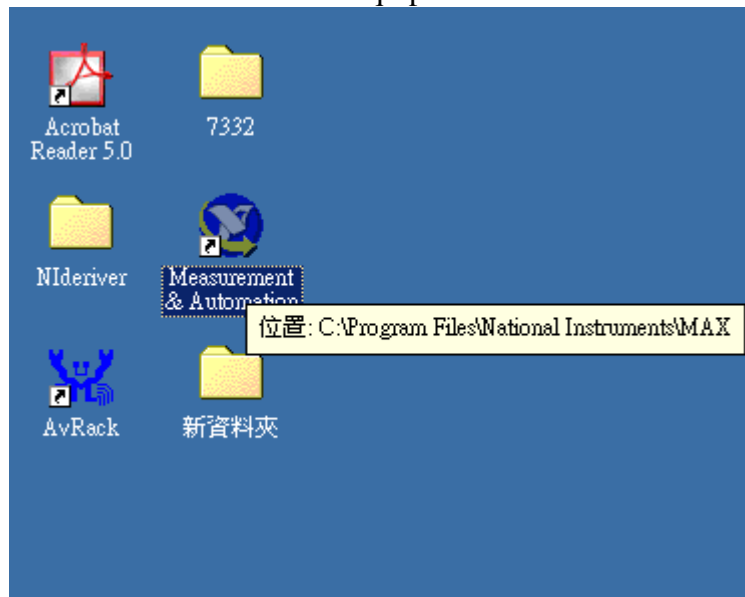
Second, to install the MTK ATE tool, execute the [Old model \ Volume1 \setup.exe](#) file. The Installation Wizard guides the user through the installation process step by step, up to Installation finish.



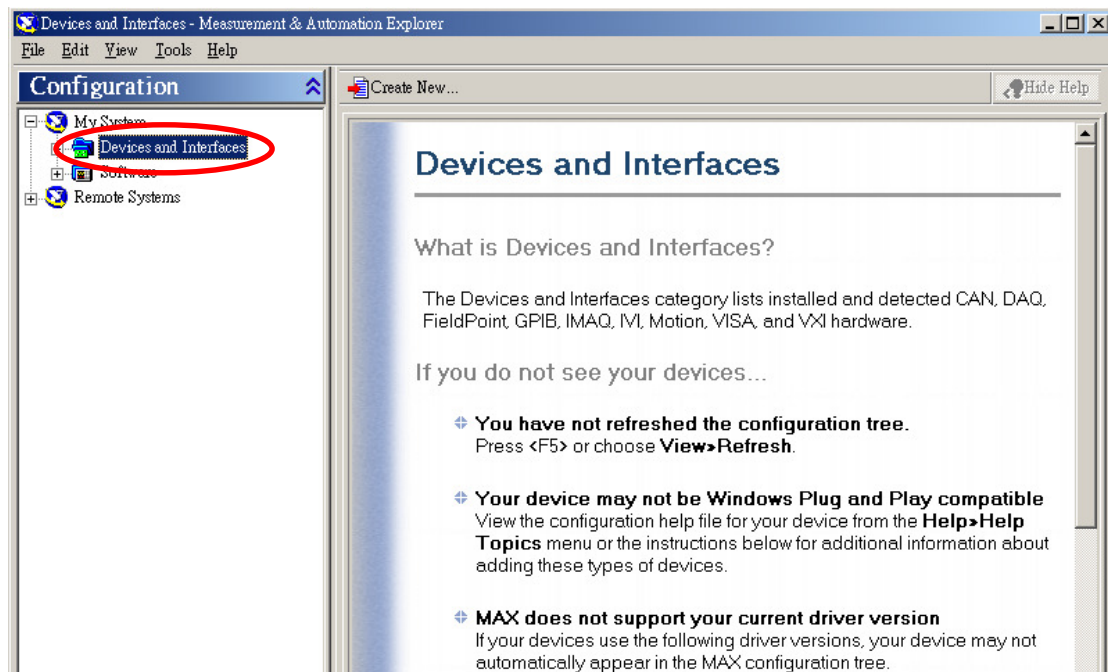
Third, to install the MTK ATE tool, execute the [ATE\\_For\\_New\\_Version\\_Setup \ Volume1 \setup.exe](#) file. The Installation Wizard guides the user through the installation process step by step, up to Installation finish.



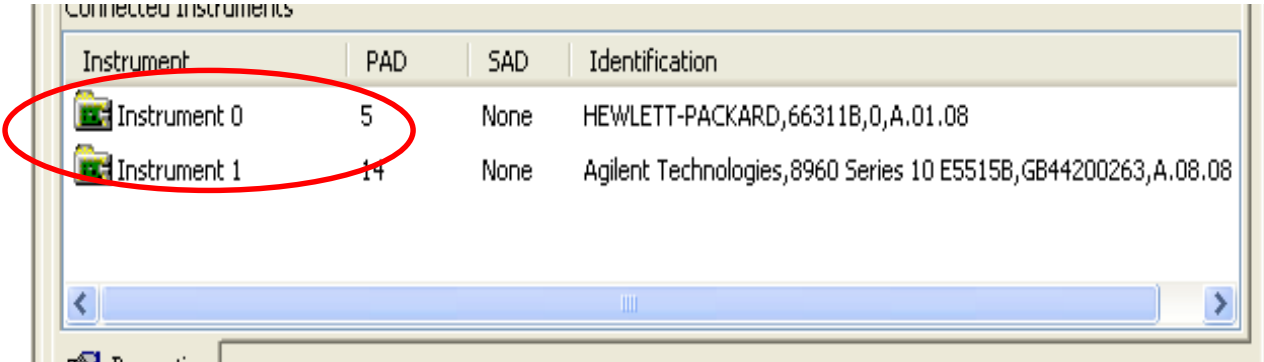
Execute Measurement & Automation to check equipment address



Choose Devices and Interfaces



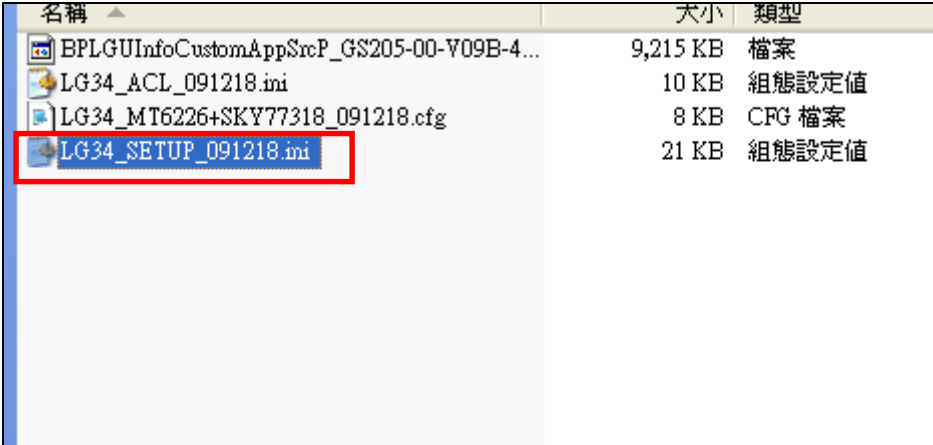
You can see your equipment address



Instrument	PAD	SAD	Identification
Instrument 0	5	None	HEWLETT-PACKARD,66311B,0,A.01.08
Instrument 1	14	None	Agilent Technologies,8960 Series 10 E5515B,GB44200263,A.08.08

Choose [LG34\\_SETUP\\_091218.ini](#) and open the file to setup from data files .

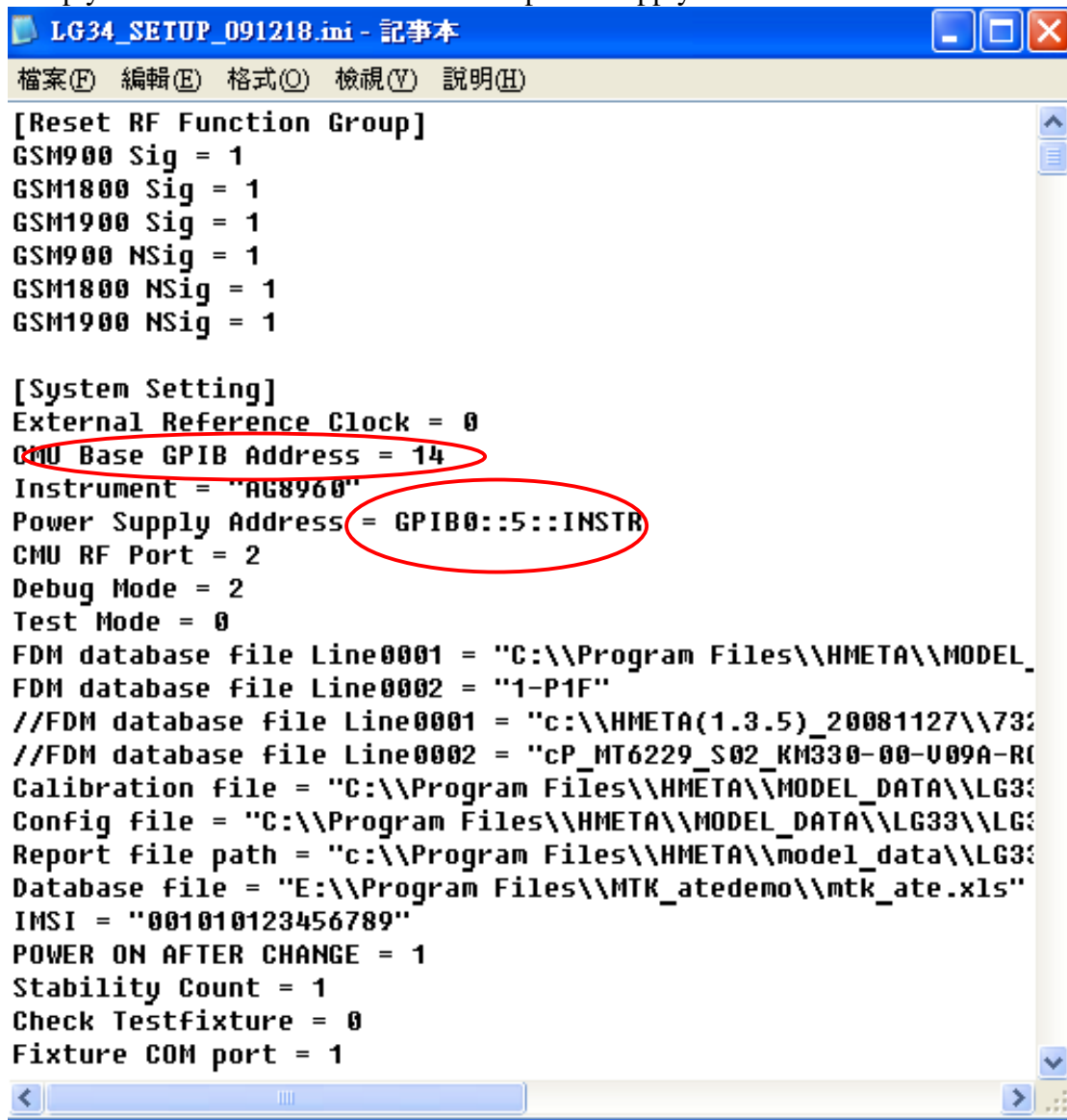
**(For example: LG34)**



名稱	大小	類型
BPLGUIInfoCustomAppSrcP_GS205-00-V09B-4...	9,215 KB	檔案
LG34_ACL_091218.ini	10 KB	組態設定值
LG34_MT6226+SKY77318_091218.cfg	8 KB	CFG 檔案
LG34_SETUP_091218.ini	21 KB	組態設定值



Setup your CMU Base GPIB address and power supply address

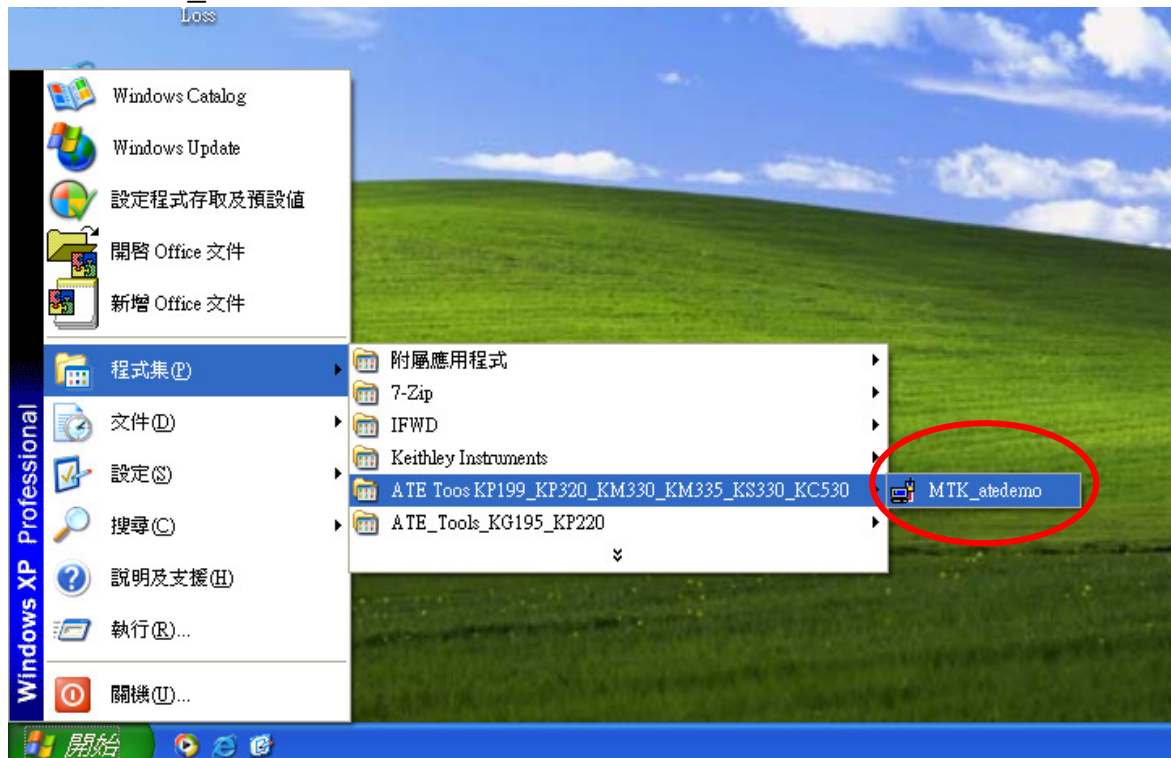


```
[Reset RF Function Group]
GSM900 Sig = 1
GSM1800 Sig = 1
GSM1900 Sig = 1
GSM900 NSig = 1
GSM1800 NSig = 1
GSM1900 NSig = 1

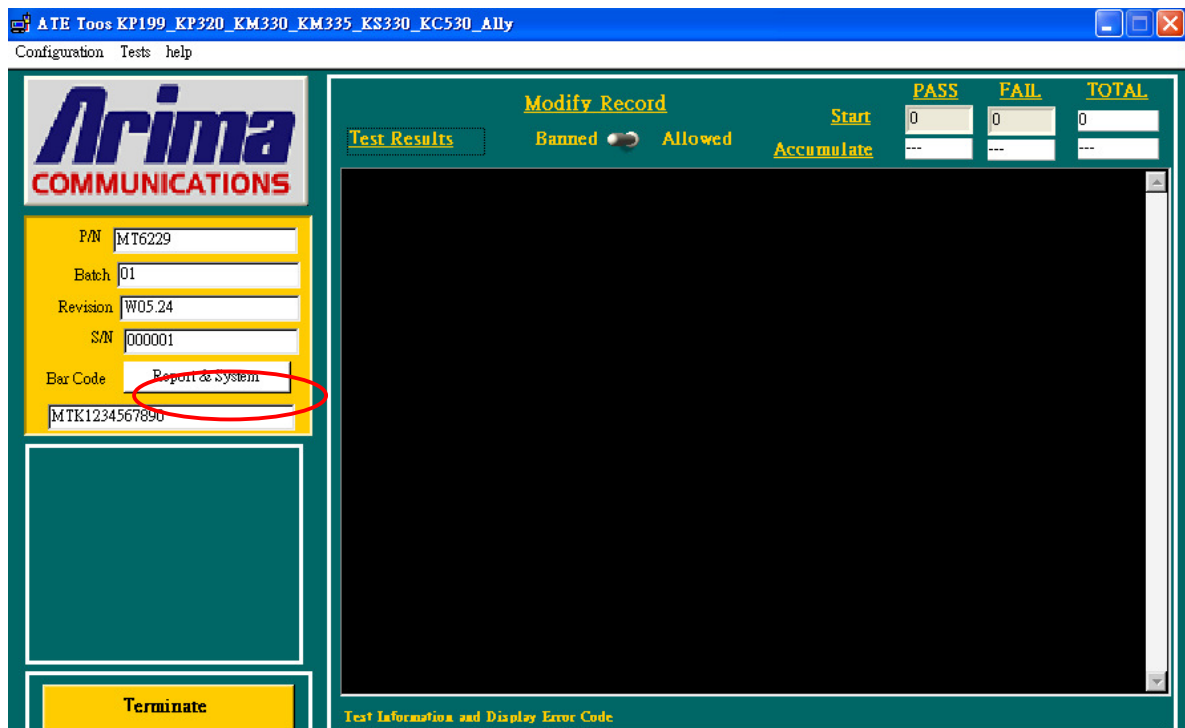
[System Setting]
External Reference Clock = 0
CMU Base GPIB Address = 14
Instrument = "AG8960"
Power Supply Address = GPIB0::5::INSTR
CMU RF Port = 2
Debug Mode = 2
Test Mode = 0
FDM database file Line0001 = "C:\\Program Files\\HMETA\\MODEL_
FDM database file Line0002 = "1-P1F"
//FDM database file Line0001 = "c:\\HMETA(1.3.5)_20081127\\732
//FDM database file Line0002 = "cP_MT6229_S02_KM330-00-U09A-R0
Calibration file = "C:\\Program Files\\HMETA\\MODEL_DATA\\LG33
Config file = "C:\\Program Files\\HMETA\\MODEL_DATA\\LG33\\LG3
Report file path = "c:\\Program Files\\HMETA\\model_data\\LG33
Database file = "E:\\Program Files\\MTK_atedemo\\mtk_ate.xls"
IMSI = "001010123456789"
POWER ON AFTER CHANGE = 1
Stability Count = 1
Check Testfixture = 0
Fixture COM port = 1
```

## ATE Tool system setting

Execute MTK\_ate demo



Press Report & System button



## Setting your equipment

The screenshot shows a software interface for configuring equipment. The top panel is divided into three main sections: Part Information, GSM/EDGE Cal Setting, and System Setting. The 'System Setting' section on the right is circled in red. Below the top panel is a section for NVRAM Database files and Config File Location.

**Part Information:**

- Part Number: MT6226
- Batch: 01
- Revision: W05.24
- Serial Number: 000001
- Bar Code: MTK1234567890

**GSM/EDGE Cal Setting:**

- Band: ☐ GSM850 Cal ☒ GSM900 Cal ☒ DCS Cal ☐ PCS Cal
- RX (Xtal Tx): APC Type: Crystal APC ☒ APC Cal ☒ PathLoss Calibration ☒ APC T/R Cal ☒ APC CapId Cal
- TX GSM/EDGE: ☒ APCDC Cal (Skyworks only) ☐ Slope Skew ☐ FB dac
- TXIQ: GMSK ☒ TXIQ PCL Check: None ☐ PA: GSM Full PCL ☒ TXP Cal
- Battery/ADC: ☒ ADC Cal/PSU Ctrl
- WiFi Cal: ☐ TxDeOffset ☐ EEPROM Copy ☐ TXP CAL ☐ RF Check ☐ Cap Id ☐ Internal Sensor
- BT Cal: ☐ BT CapId ☐ wo Tester
- GSM/EDGE Final Setting: ☐ GSM850 ☒ GSM900 ☒ DCS ☐ PCS ☐ GPRS Test

**System Setting:**

- TEST MODE SELECT: Manual Initial
- Bar Code Get Type When Calibration: Scan Barcode
- Power Supply Type: Agilent 663xx PSU GPIB Address: GPIB0::5::INSTR
- GSM/EDGE Tester: Agilent 8960 CMU RF Port: RF2
- WiFi Tester: N4010A
- BT Tester: N4010A WCDMA Tester: MT8820B
- Baseband Chip Type: AutoDetect COM Port Select: COM 11
- ☐ Cal INP LOSS ☐ Cal OUP LOSS
- Save Change

**NVRAM Database file (For Modem and feature phone):**

e:\calibration data\7263 Calibration data\BPLGUIInfoCustomAppSrcP\_GS205-00-V09B-404-XX-FEB-27-2010

**NVRAM Database file (For AP, Smart phone only):**

Config File Location (CFG file): e:\calibration data\7263 Calibration data\LG34\_MT6226+SKY77318\_091218.cfg

**Calibration File Location (.ini file):**

e:\calibration data\7263 Calibration data\LG34\_ACL\_091218.ini

## Setting your power supply type

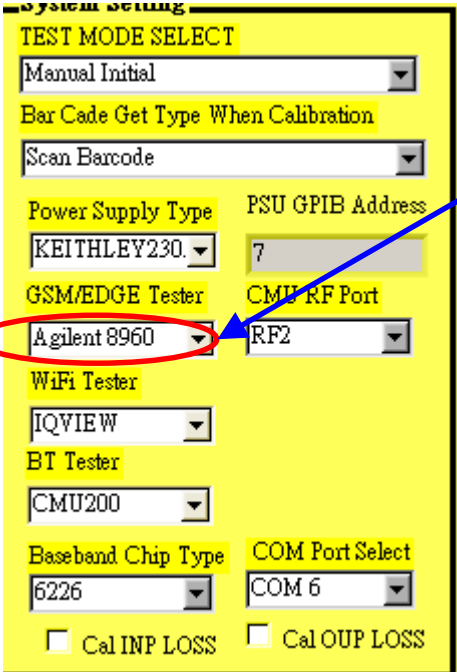
The close-up shows the 'System Setting' section. The 'Power Supply Type' dropdown menu is circled in red and set to 'KEITHLEY230'. A blue arrow points from a text box to this dropdown.

**System Setting:**

- TEST MODE SELECT: Manual Initial
- Bar Code Get Type When Calibration: Scan Barcode
- Power Supply Type: KEITHLEY230 PSU GPIB Address: 7
- GSM/EDGE Tester: Agilent 8960 CMU RF Port: RF2
- WiFi Tester: IQVIEW
- BT Tester: CMU200
- Baseband Chip Type: 6226 COM Port Select: COM 6
- ☐ Cal INP LOSS ☐ Cal OUP LOSS

Choose your Power Supply Type

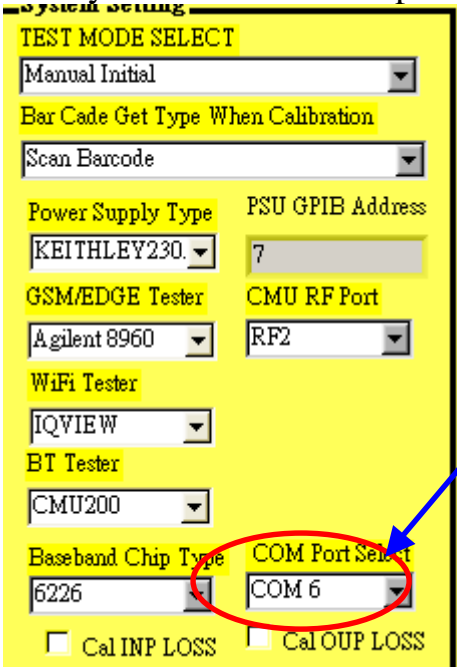
## Setting your GSM/EDGE Tester



The screenshot shows the 'System Setting' window. The 'GSM/EDGE Tester' dropdown menu is highlighted with a red circle, and a blue arrow points from a text box to it. The text box contains the instruction 'Choose your Tester'.

System Setting	
<b>TEST MODE SELECT</b>	
Manual Initial	
Bar Code Get Type When Calibration	
Scan Barcode	
Power Supply Type	PSU GPIB Address
KEITHLEY230	7
GSM/EDGE Tester	CMU RF Port
Agilent 8960	RF2
WiFi Tester	
IQVIEW	
BT Tester	
CMU200	
Baseband Chip Type	COM Port Select
6226	COM 6
<input type="checkbox"/> Cal INP LOSS	<input type="checkbox"/> Cal OUP LOSS

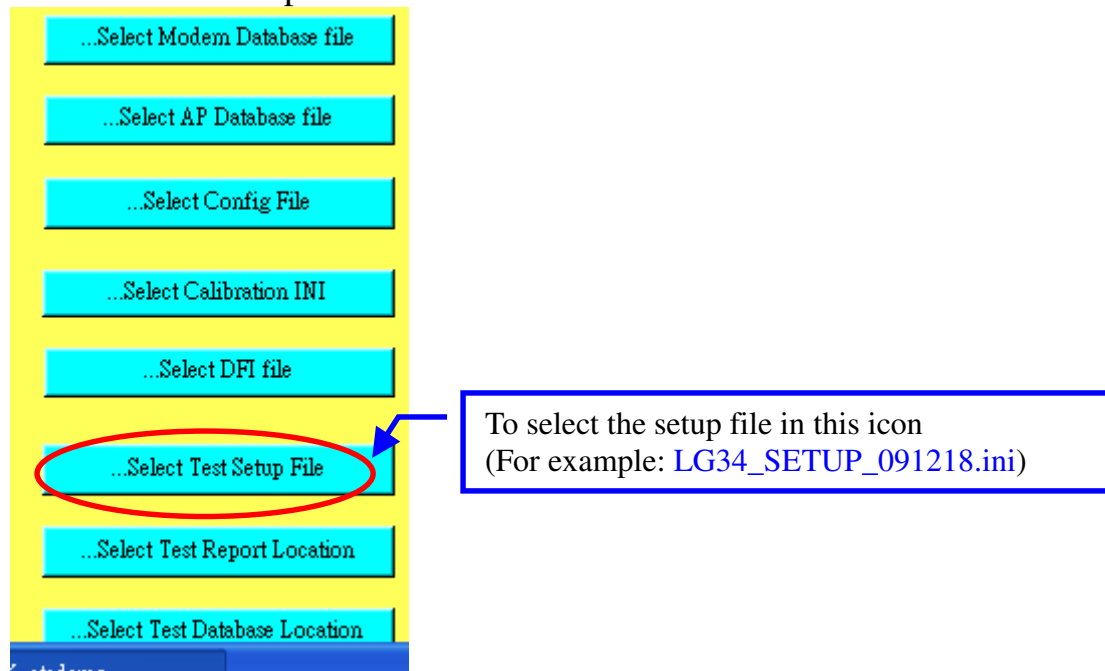
## Choose your download com port



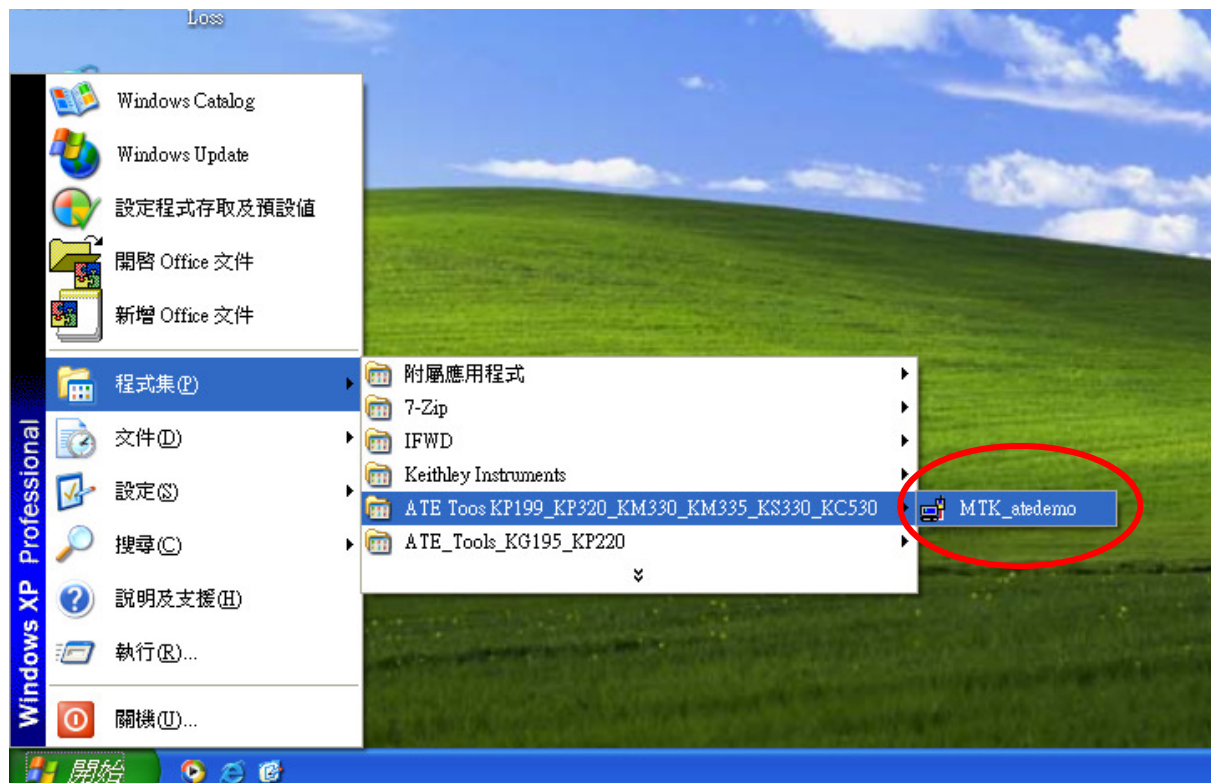
The screenshot shows the 'System Setting' window. The 'COM Port Select' dropdown menu is highlighted with a red circle, and a blue arrow points from a text box to it. The text box contains the instruction 'Choose your download cable connect COM port'.

System Setting	
<b>TEST MODE SELECT</b>	
Manual Initial	
Bar Code Get Type When Calibration	
Scan Barcode	
Power Supply Type	PSU GPIB Address
KEITHLEY230	7
GSM/EDGE Tester	CMU RF Port
Agilent 8960	RF2
WiFi Tester	
IQVIEW	
BT Tester	
CMU200	
Baseband Chip Type	COM Port Select
6226	COM 6
<input type="checkbox"/> Cal INP LOSS	<input type="checkbox"/> Cal OUP LOSS

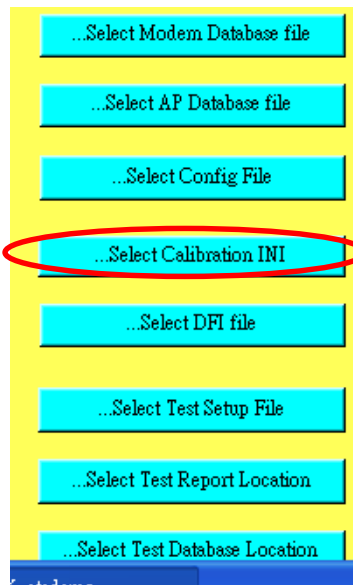
Choose “select test setup file”



Execute MTK \_ ate demo again

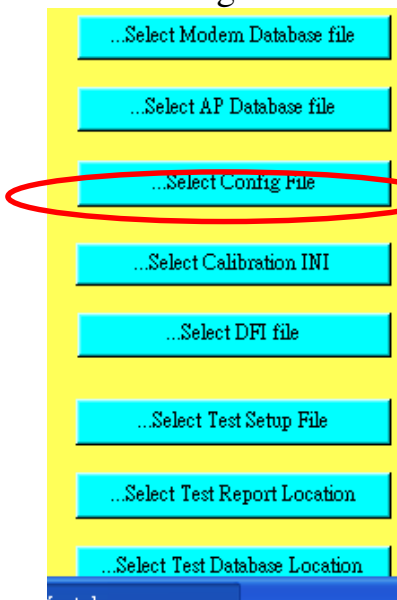


### Choose Calibration INI



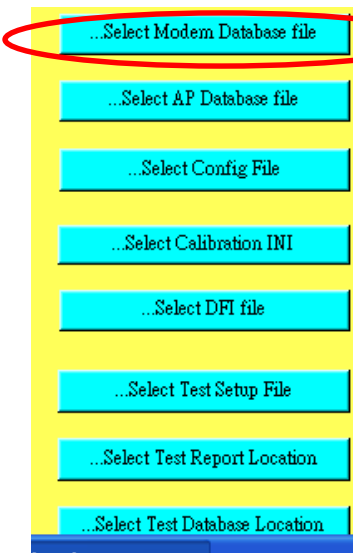
To select the ini file in this icon  
(For example: LG34\_ACL\_091218.ini)

### Choose Config File



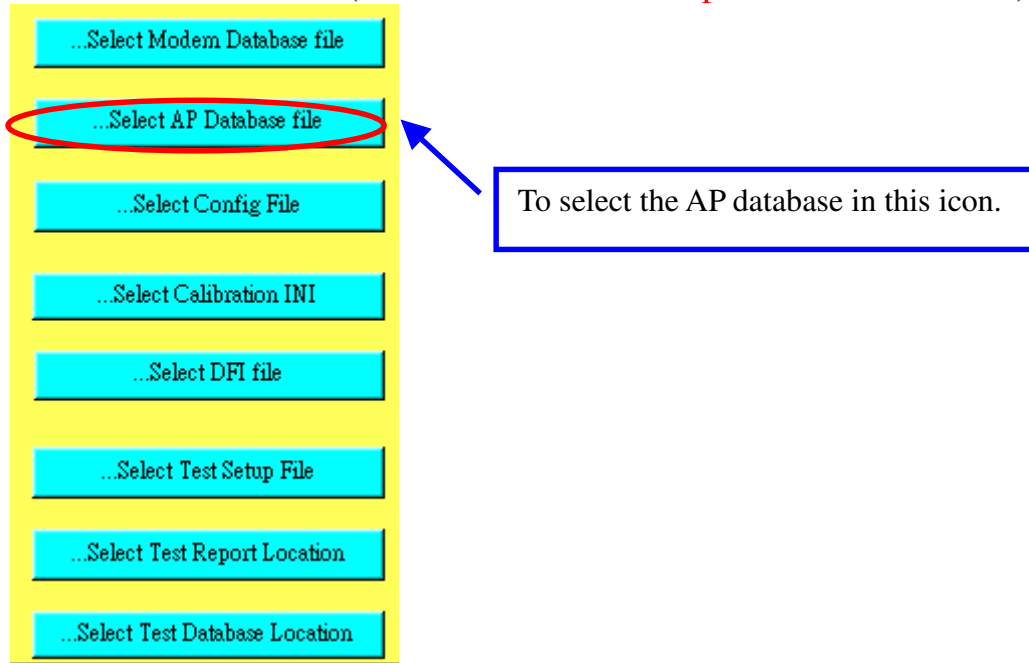
To select the CFG file in this icon  
(For example:  
LG34\_MT6226+SKY77318\_091218.cfg)

### Choose NVRAM Database file

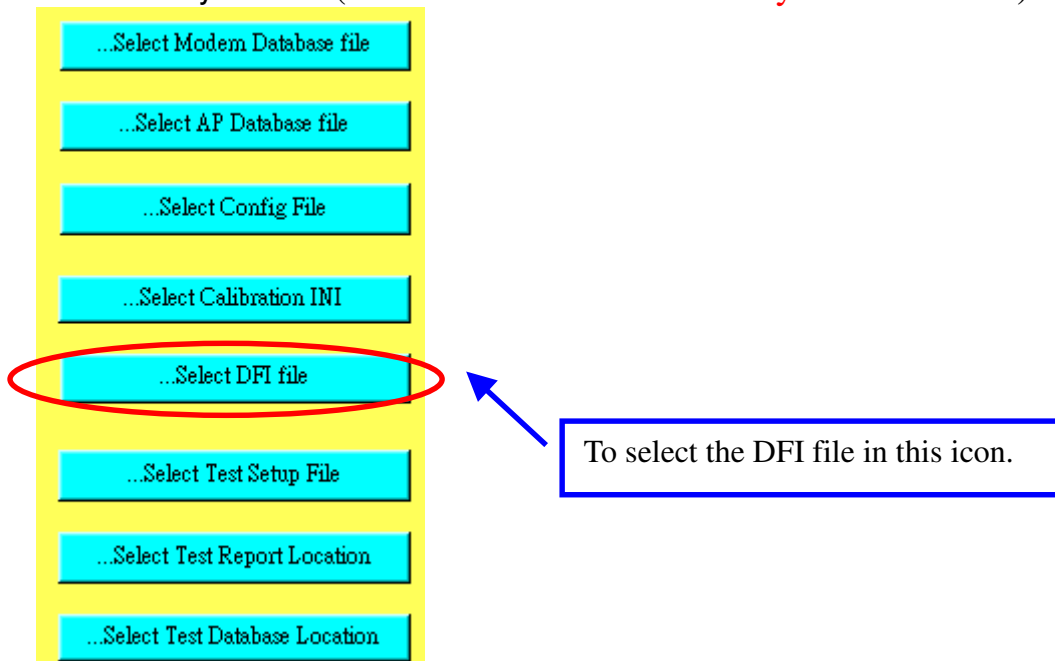


To select the SW database in this icon.

Choose AP database file (Caution: ONLY Smart phone need choose it)

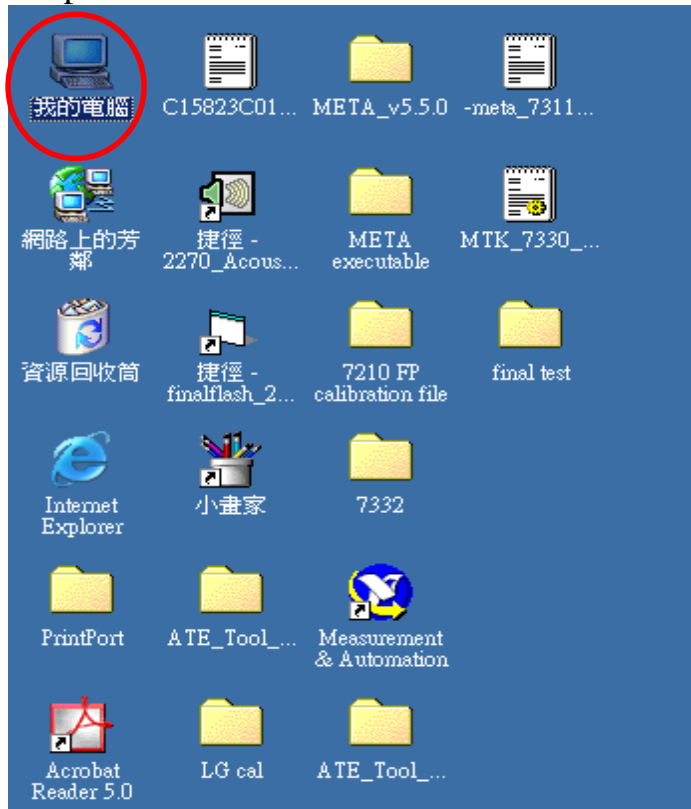


Choose Battery DFI file (Caution: ONLY Smart battery need choose it)



# How to setup your test report location

Choose my computer

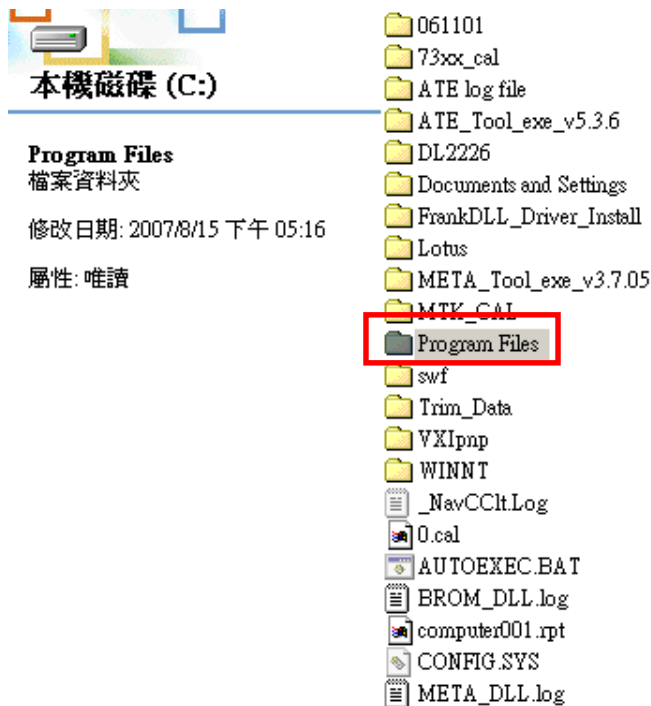


Choose “C” disk

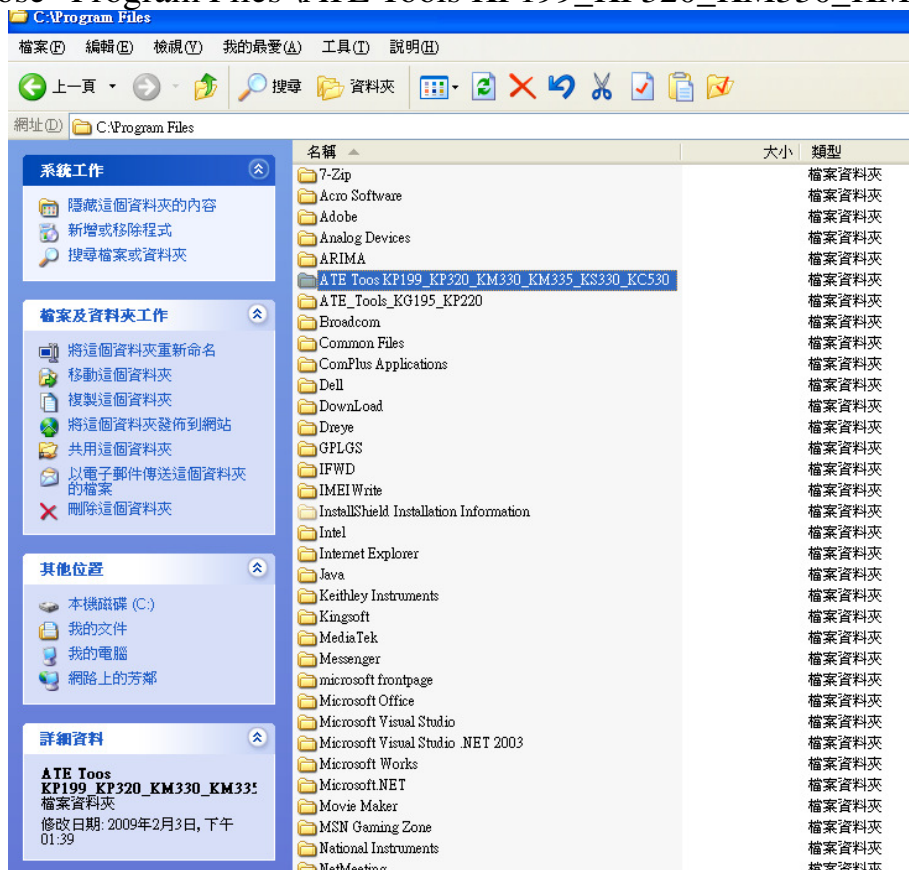
名稱 ▲	類型	大小總計	可用空間
3.5 軟碟機 (A:)	3.5 吋軟式磁碟機		
本機磁碟 (C:)	本機磁碟	18.6 GB	15.6 GB
新增磁碟區 (D:)	本機磁碟	18.6 GB	16.0 GB
控制台	可用空間: 15.6 GB, 容量: 18.6 GB		



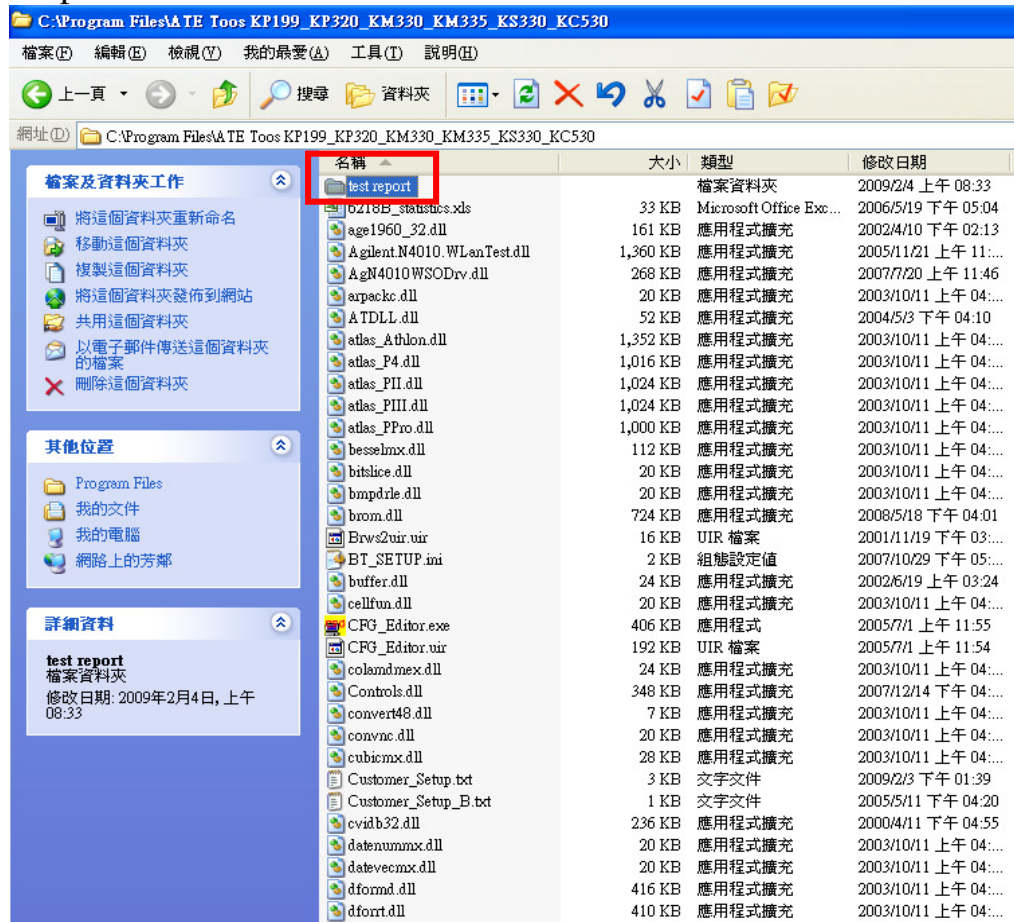
Choose “program files”



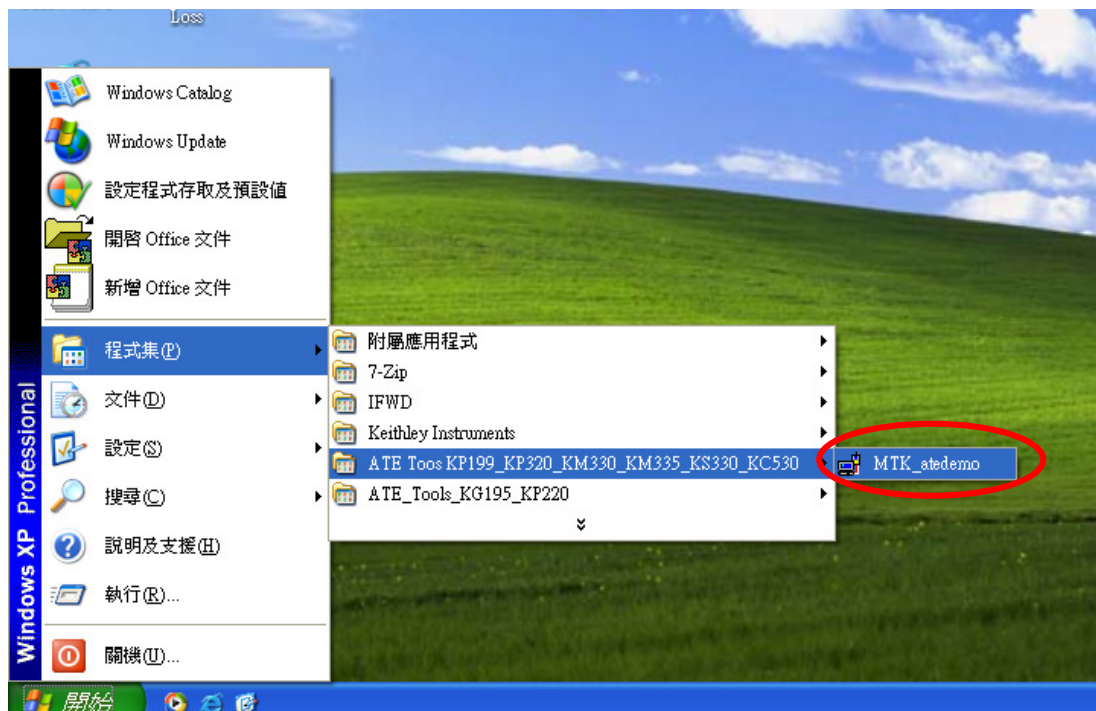
Choose “Program Files \ATE Tools KP199\_KP320\_KM330\_KM335\_KC530”file



## Setup new file and leave the window



## Execute MTK\_ate demo



Press Report & System button

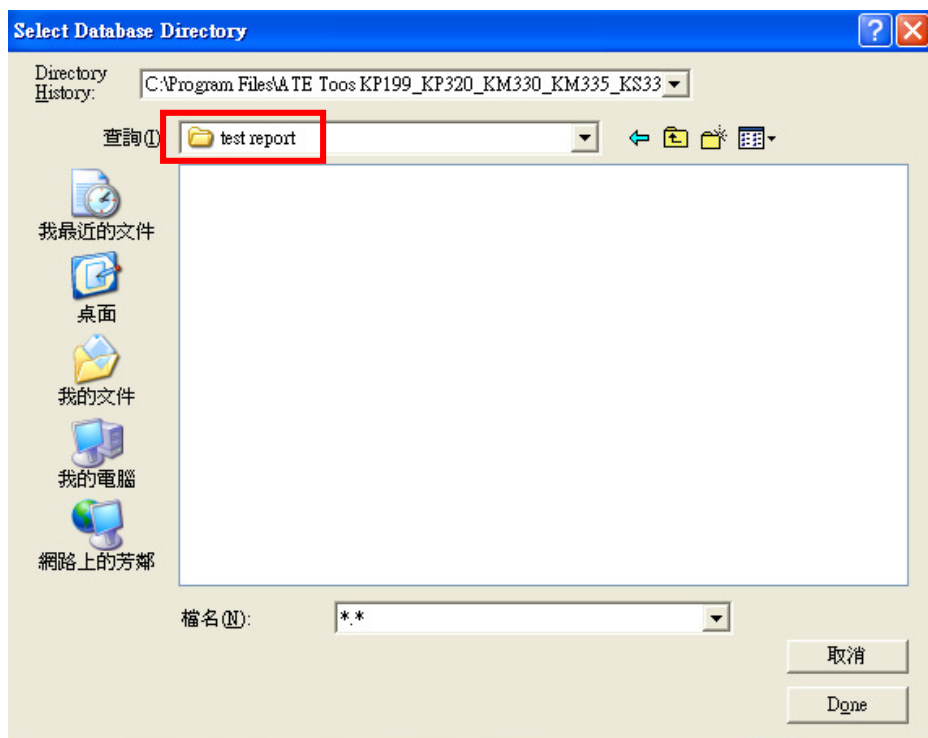
The screenshot shows the Arima Communications software interface. The title bar reads "ATE Toos KP199\_KP320\_KM330\_KM335\_KS330\_KC530\_Ally". The menu bar includes "Configuration", "Tests", and "help". The main window has a left sidebar with the Arima logo and a form containing fields for P/N (MT6229), Batch (01), Revision (W05.24), S/N (000001), and Bar Code (MTK1234567890). A "Report & System" button is circled in red. The main area displays "Test Results" with a table showing "PASS", "FAIL", and "TOTAL" counts. The "PASS" count is 0, "FAIL" is 0, and "TOTAL" is 0. The "Accumulate" button is also visible. The bottom status bar reads "Test Information and Display Error Code".

PASS	FAIL	TOTAL
0	0	0

Press “select test report location”

The screenshot shows a vertical list of file selection options. The options are: "...Select Modem Database file", "...Select AP Database file", "...Select Config File", "...Select Calibration INI", "...Select DFI file", "...Select Test Setup File", "...Select Test Report Location" (circled in red), and "...Select Test Database Location".

Choose your setup report



Press “Done”



## Setup finish

<input type="checkbox"/> Fast Power Measurement (CMU 3.50) <input type="checkbox"/> Wireless test <input type="checkbox"/> Fast Handset Calibration <input checked="" type="checkbox"/> GSM Default Items <input checked="" type="checkbox"/> Stop Condition <input type="checkbox"/> Add Final Status <input type="checkbox"/> RF Final Test with Check Bar Code <input type="checkbox"/> Final Test with IMEI Write <input type="checkbox"/> Add Cal Status <input type="checkbox"/> Multi MS    MS # <input type="text" value="2 Handsets"/>	PA <input type="text" value="GSM Full PCL"/> <input checked="" type="checkbox"/> TXP Cal <b>Battery/ADC:</b> <input checked="" type="checkbox"/> ADC Cal/PSU Ctrl <b>WiFi Cal:</b> <input type="checkbox"/> TxDoOffset <input type="checkbox"/> EEPROM Copy <input type="checkbox"/> TXP CAL <input type="checkbox"/> RF Check <input type="checkbox"/> Cap Id <input type="checkbox"/> Internal Sensor <b>BT Cal:</b> <input type="checkbox"/> BT CapId <input type="checkbox"/> wo Tester <b>GSM/EDGE Final Setting</b> <input type="checkbox"/> GSM850 <input checked="" type="checkbox"/> GSM900 <input checked="" type="checkbox"/> DCS <input type="checkbox"/> PCS <input type="checkbox"/> GPRS Test	<b>WiFi Tester</b> <input type="text" value="N4010A"/> <b>BT Tester</b> <b>WCDMA Tester</b> <input type="text" value="N4010A"/> <input type="text" value="MT8820B"/> <b>Baseband Chip Type</b> <b>COM Port Select</b> <input type="text" value="AutoDetect"/> <input type="text" value="COM 11"/> <input type="checkbox"/> Cal INP LOSS <input type="checkbox"/> Cal OUP LOSS <input type="button" value="Save Change"/>
---	--	---

<b>NVRAM Database file (For Modem and feature phone)</b> <input type="text" value="e:\calibration data\7263 Calibration data\BPLGUInfoCustomAppSrcP_GS205-00-V09B-404-XX-FEB-27-2010"/>	<input type="button" value="...Select Modem Database file"/>
<b>NVRAM Database file (For AP, Smart phone only)</b> <input type="text"/>	<input type="button" value="...Select AP Database file"/>
<b>Config File Location (CFG file)</b> <input type="text" value="e:\calibration data\7263 Calibration data\LG34_MT6226+SKY77318_091218.cfg"/>	<input type="button" value="...Select Config File"/>
<b>Calibration File Location (.ini file)</b> <input type="text" value="e:\calibration data\7263 Calibration data\LG34_ACL_091218.ini"/>	<input type="button" value="...Select Calibration INI"/>
<b>Battery DFI file (For smart battery)</b> <input type="text"/>	<input type="button" value="...Select DFI file"/>
<b>Test Setup File Location (Setup file)</b> <input type="text" value="e:\calibration data\7263 Calibration data\LG34_SETUP_091218.ini"/>	<input type="button" value="...Select Test Setup File"/>
<b>Test Report Location</b> <input type="text" value="e:\calibration data\report"/>	<input type="button" value="...Select Test Report Location"/>
<b>Report Database Location</b> <input type="text" value="E:\Program Files\MTK_atdemo\mtk_ate.xls"/>	<input type="button" value="...Select Test Database Location"/>

When you finish the setup then you press **save change** icon.

<b>Part Number</b> <input type="text" value="MTK_6218B"/> <b>Batch</b> <input type="text" value="01"/> <b>Revision</b> <input type="text" value="W05.24"/> <b>Serial Number</b> <input type="text" value="000001"/> <b>Bar Code</b> <input type="text" value="MTK1234567890"/>	<b>GSM/EDGE Cal Setting</b> <b>Band:</b> <input type="checkbox"/> GSM850 Cal <input checked="" type="checkbox"/> GSM900 Cal <input checked="" type="checkbox"/> DCS Cal <input checked="" type="checkbox"/> PCS Cal <b>RX:</b> <input type="checkbox"/> Phase Error (CMU) <input type="checkbox"/> IP2 Cal <input checked="" type="checkbox"/> APC Cal <input checked="" type="checkbox"/> PathLoss Calibration <b>TX GSM:</b> <b>EDGE</b> <input type="checkbox"/> TXIQ <input checked="" type="checkbox"/> SKY (77328) <input type="checkbox"/> RFMD GSM <input type="checkbox"/> Full PCL <input type="checkbox"/> SKY EPSK (77316) <input type="checkbox"/> RENESAS <input checked="" type="checkbox"/> APC Check <input type="checkbox"/> Full PCL EPSK <b>Battery/ADC:</b> <input checked="" type="checkbox"/> ADC Cal/PSU Ctrl	<b>System Setting</b> <b>TEST MODE SELECT</b> <input type="text" value="Manual Initial"/> <b>Bar Code Get Type When Calibration</b> <input type="text" value="Scan Barcode"/> <b>Power Supply Type</b> <b>PSU GPIB Address</b> <input type="text" value="KEITHLEY230"/> <input type="text" value="7"/> <b>GSM/EDGE Tester</b> <b>CMU RF Port</b> <input type="text" value="Agilent 8960"/> <input type="text" value="RF2"/> <b>WiFi Tester</b> <input type="text" value="IQVIEW"/> <b>BT Tester</b> <input type="text" value="CMU200"/> <b>Baseband Chip Type</b> <b>COM Port Select</b> <input type="text" value="6226"/> <input type="text" value="COM 6"/> <input type="checkbox"/> Cal INP LOSS <input type="checkbox"/> Cal OUP LOSS <input type="button" value="Save Change"/>
--	--	--

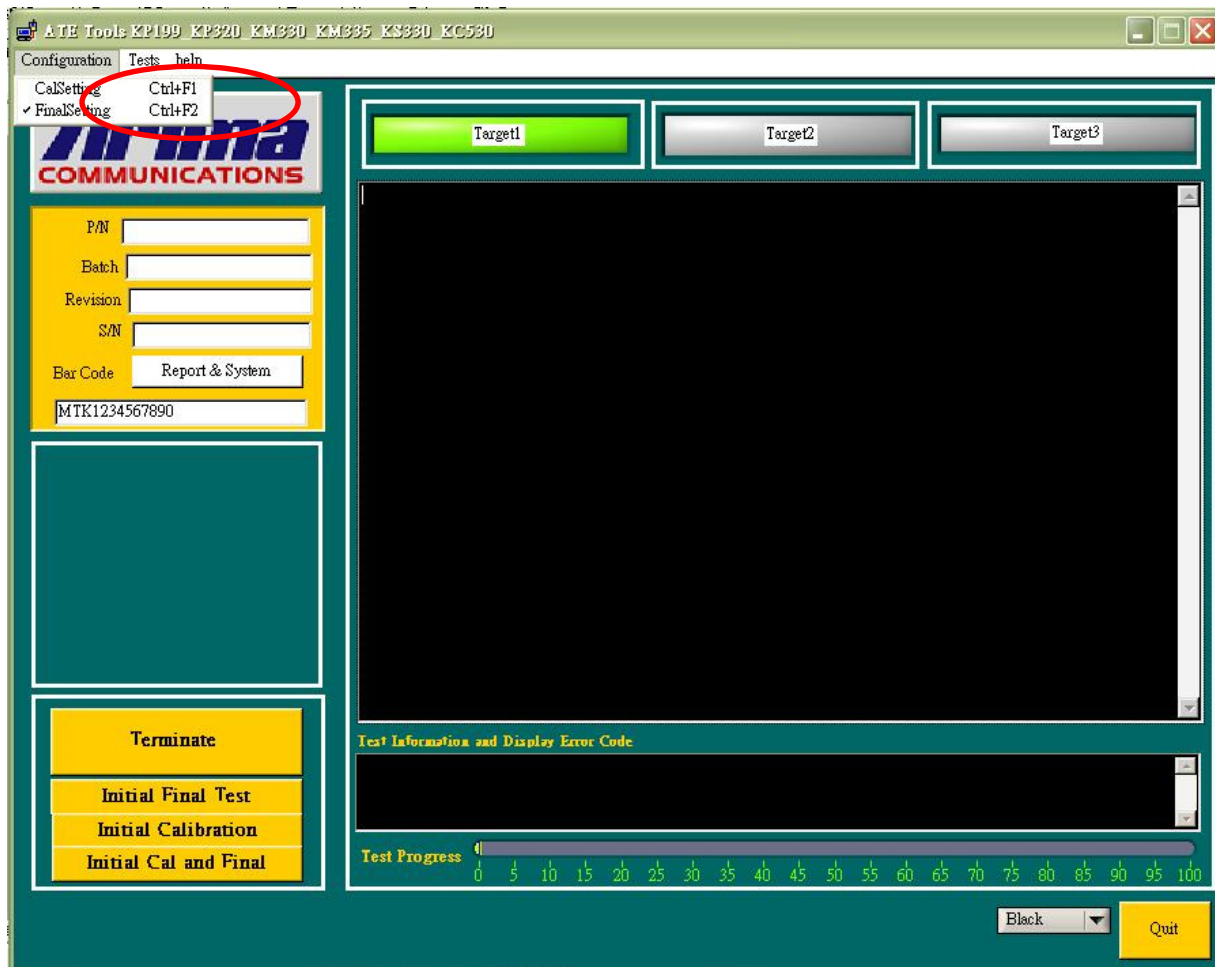
  

<input checked="" type="checkbox"/> Fast Power Measurement (CMU 3.50) <input type="checkbox"/> Wireless test <input checked="" type="checkbox"/> GSM Default Items <input type="checkbox"/> Stop Condition <input type="checkbox"/> Add Final Status <input type="checkbox"/> RF Final Test with Check Bar Code <input type="checkbox"/> Final Test with IMEI Write <input type="checkbox"/> Add Cal Status	<b>WiFi Cal:</b> <input type="checkbox"/> WiFi <b>GSM/</b> <input type="checkbox"/> GSM
--	--

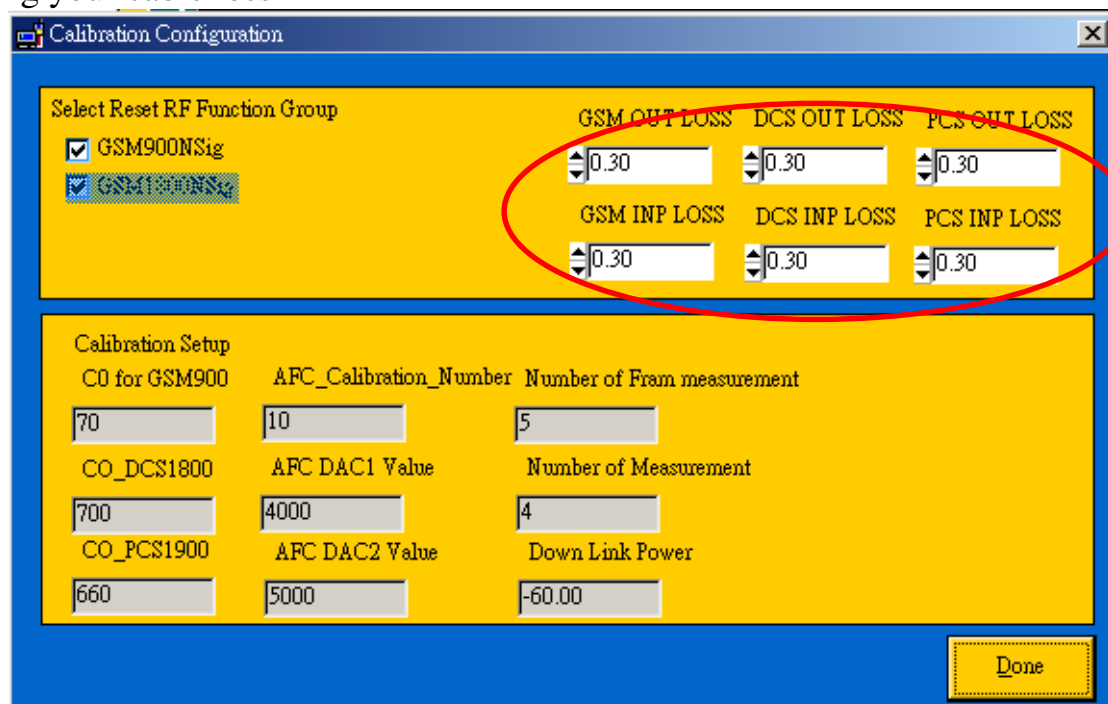
  

<b>NVRAM Database file</b> <input type="text" value="c:\Documents and Settings\Administrator\COMPUTER001\桌面\7332\BPLGUInfoCustomSrcP_7S73320000-001-R1B"/>	<input type="button" value="...Select NVRAM Database file"/>
<b>Config File Location (CFG file)</b> <input type="text" value="c:\Documents and Settings\Administrator\COMPUTER001\桌面\7332\meta_7332_ep2_2_20070622.CFG"/>	<input type="button" value="...Select Config File"/>
<b>Calibration File Location (.ini file)</b> <input type="text" value="c:\Documents and Settings\Administrator\COMPUTER001\桌面\7332\MTKCAL_7332_ep1_20070322.ini"/>	<input type="button" value="...Select Calibration INI"/>
<b>Test Setup File Location (Setup file)</b> <input type="text" value="c:\Documents and Settings\Administrator\COMPUTER001\桌面\7332\MTK_7332_SETUP_ep1_20070322.ini"/>	<input type="button" value="...Select Test Setup File"/>
<b>Test Report Location</b> <input type="text" value="c:\ATE log file"/>	<input type="button" value="...Select Test Report Location"/>
<b>Report Database Location</b> <input type="text" value="c:\Program Files\MTK_atdemo\mtk_ate.xls"/>	<input type="button" value="...Select Test Database Location"/>

Press Configuration choose Cal Setting

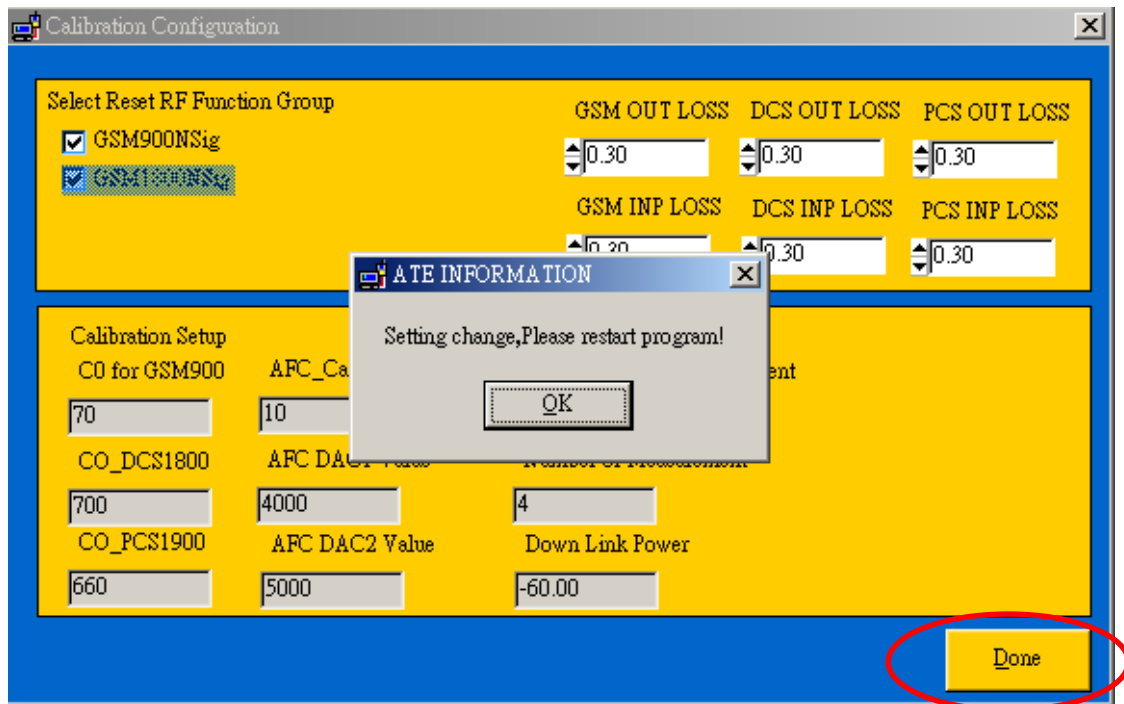


Setting your cable loss

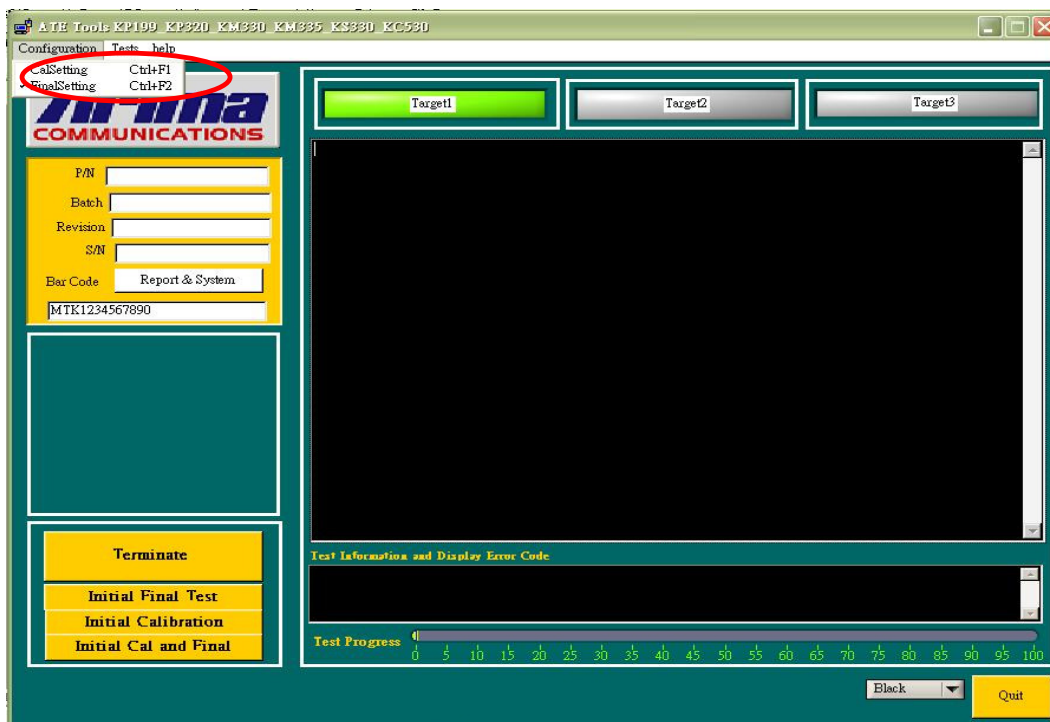




Press Done to save



Press Configuration choose Final setting



Choose “MT Call” from Establish Call Type

**Select Reset RF Function Group**

- ☒ GSM850 Sig
- ☐ GSM 900 Sig
- ☒ GSM 1800 Sig
- ☒ GSM 1900 Sig

**Establish Call Type** ☒ MT Call ☐ MO Call

**IMSI NUMBER**  
001011234567890

☐ External 10MHz Reference Clock

**Call Setup Configuration**

Call Setup Channel BCCH Channel

**GSM850** 128 128

Call Setup Channel BCCH Channel Call Setup Network

**GSM** 1 32 GSM900

Call Setup Channel BCCH Channel BCCH RF LEVEL

**DCS** 512 700 -60.00

Call Setup Channel BCCH Channel BS TCH LEVEL

**PCS** 512 700 -81.00

GPRS Test Mode GPRS Test Mode

**GPRS** AG USFER MCS9 ☐ GPRS ACK ON/OFF

Multi Slot

Key in your test SIM card number form IMSI NUMBER

**Select Reset RF Function Group**

- ☒ GSM850 Sig
- ☐ GSM 900 Sig
- ☒ GSM 1800 Sig
- ☒ GSM 1900 Sig

**Establish Call Type** ☒ MT Call ☐ MO Call

**IMSI NUMBER**  
001011234567890

☐ External 10MHz Reference Clock

**Call Setup Configuration**

Call Setup Channel BCCH Channel

**GSM850** 128 128

Call Setup Channel BCCH Channel Call Setup Network

**GSM** 1 32 GSM900

Call Setup Channel BCCH Channel BCCH RF LEVEL

**DCS** 512 700 -60.00

Call Setup Channel BCCH Channel BS TCH LEVEL

**PCS** 512 700 -81.00

GPRS Test Mode GPRS Test Mode

**GPRS** AG USFER MCS9 ☐ GPRS ACK ON/OFF

Multi Slot

Press “Done” and save your setting

**Final Test Configurations**

**Select Reset RF Function Group**

- ☒ GSM850 Sig
- ☐ GSM 900 Sig
- ☒ GSM 1800 Sig
- ☒ GSM 1900 Sig

**Establish Call Type** ☒ MT Call ☐ MO Call

**IMSI NUMBER**  
001011234567890

☐ External 10MHz Reference Clock

**Call Setup Configuration**

Call Setup Channel BCCH Channel

**GSM850** 128 128

Call Setup Channel BCCH Channel Call Setup Network

**GSM** 1 32 GSM900

Call Setup Channel BCCH Channel BCCH RF LEVEL

**DCS** 512 700 -60.00

Call Setup Channel BCCH Channel BS TCH LEVEL

**PCS** 512 700 -81.00

GPRS Test Mode GPRS Test Mode

**GPRS** AG USFER MCS9 ☐ GPRS ACK ON/OFF

Multi Slot

**Measurement Configurations**

Power Measurement Burst: 10

Modulation: 10

☒ Average Burst Power

☒ Peak Burst Power

☒ PVT Match

☒ Timing Error

☒ Rx Quality

☒ RX Level

☐ RFER

☒ BBB

☒ Manual BER Limit Check

**Setting change, Please restart program!**

OK

**BLUETOOTH LOSS**

BT OUT LOSS: 0.50

BT INP LOSS: 0.50

**GSM850 LOSS /**

GSM OUT LOSS: 0.30

GSM INP LOSS: 0.30

**DCS OUT LOSS**

DCS OUT LOSS: 0.30

DCS INP LOSS: 0.30

**PCS OUT LOSS**

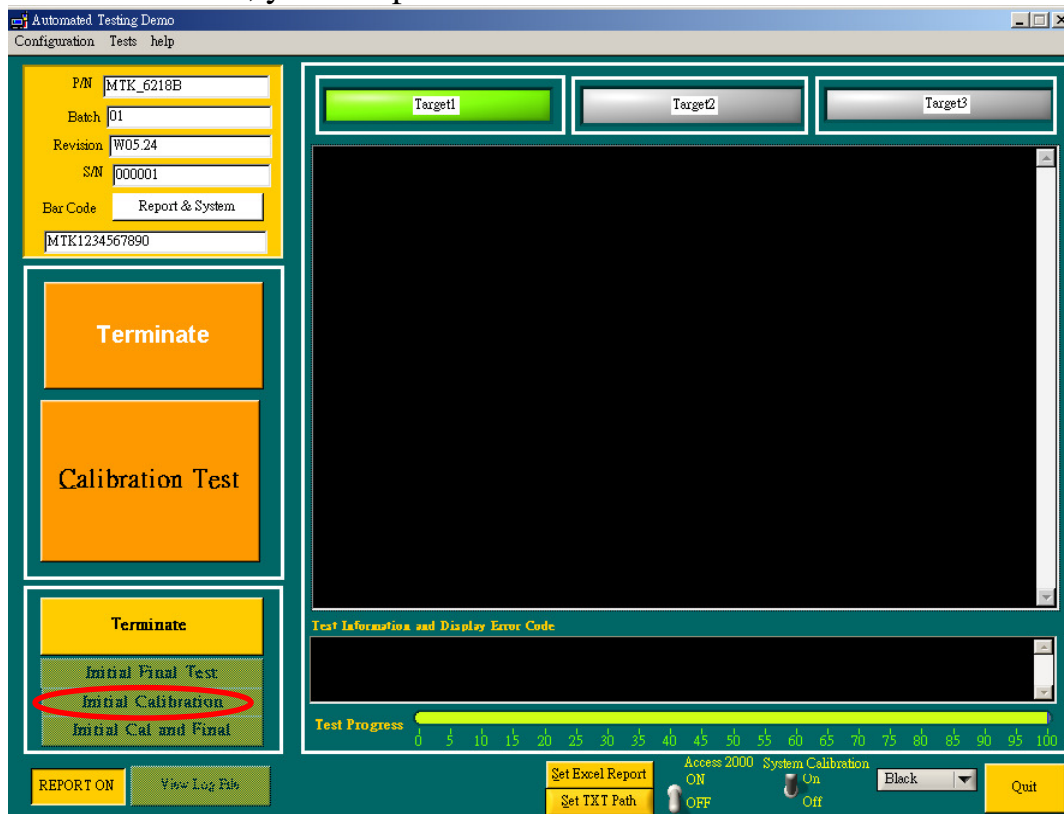
PCS OUT LOSS: 0.30

PCS INP LOSS: 0.30

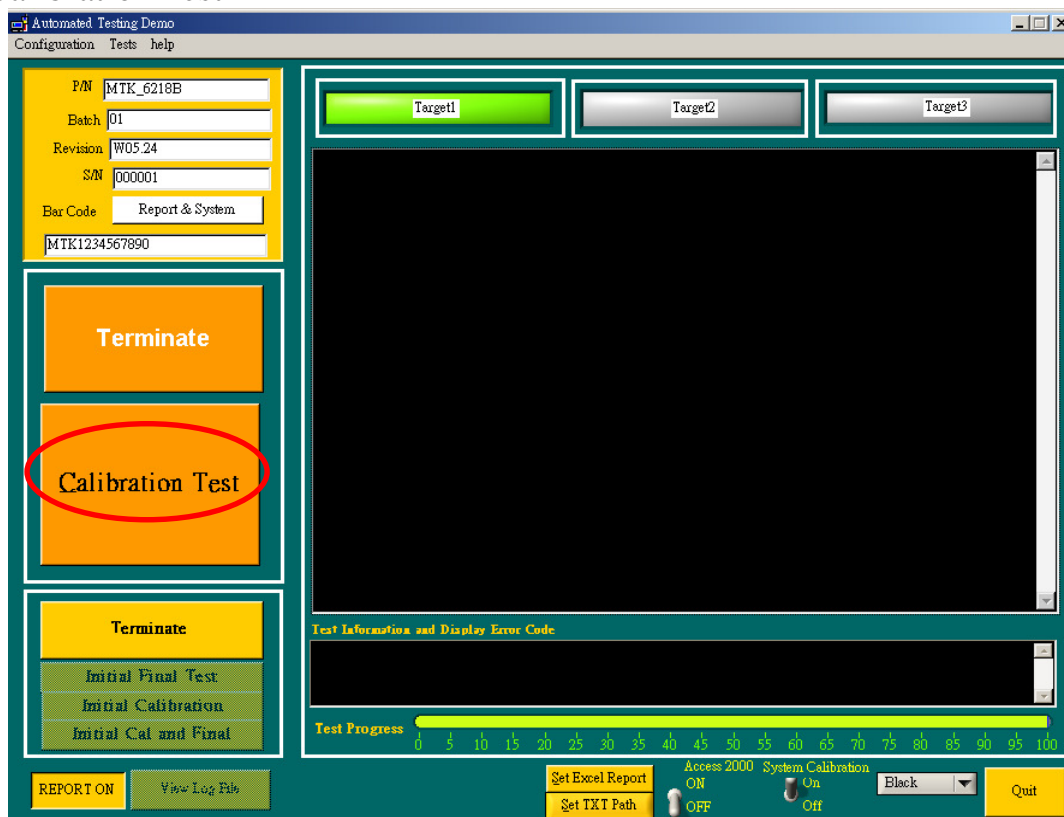
Done



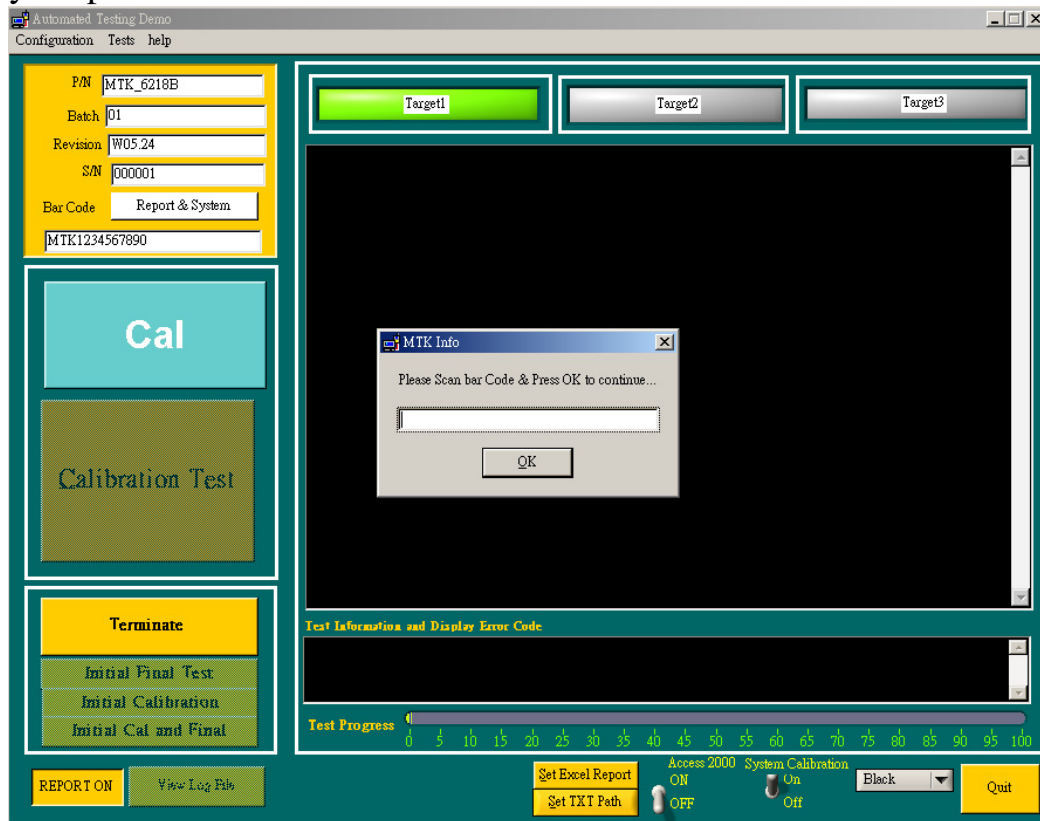
If you want calibration , you can press “initial calibration”



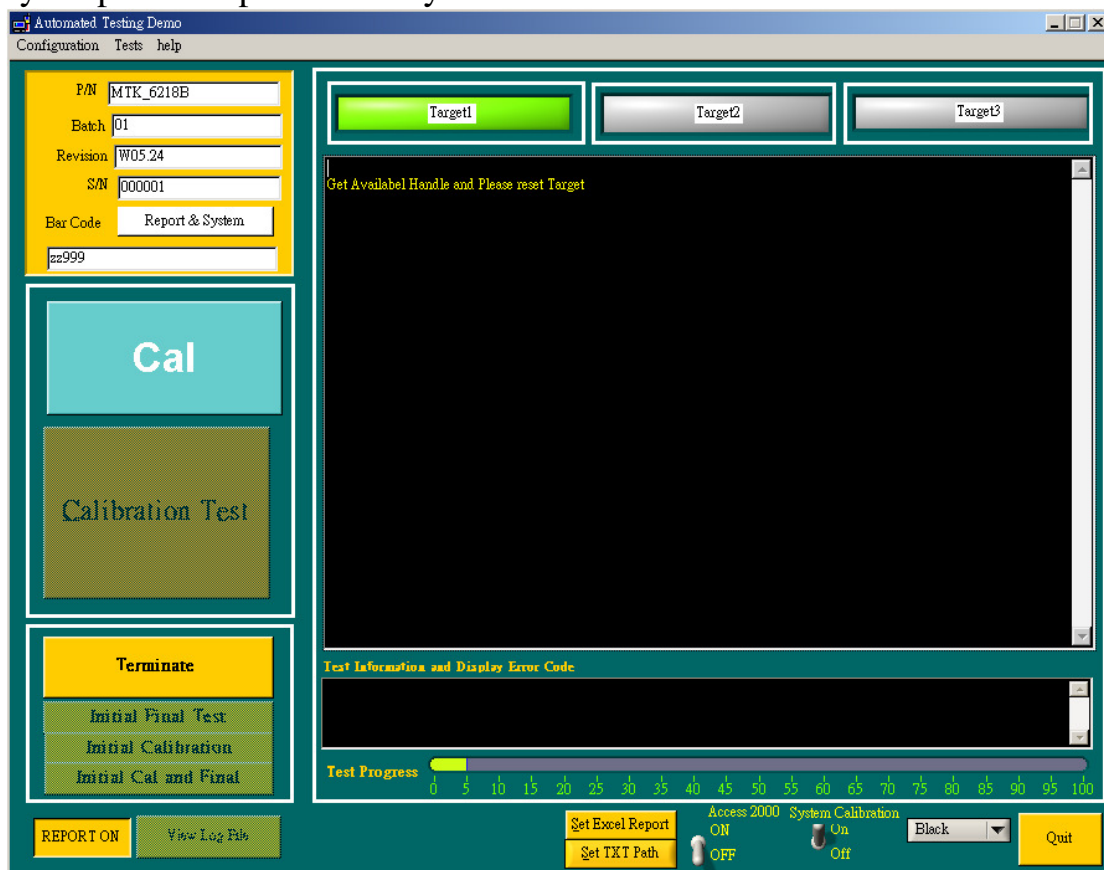
Press Calibration Test



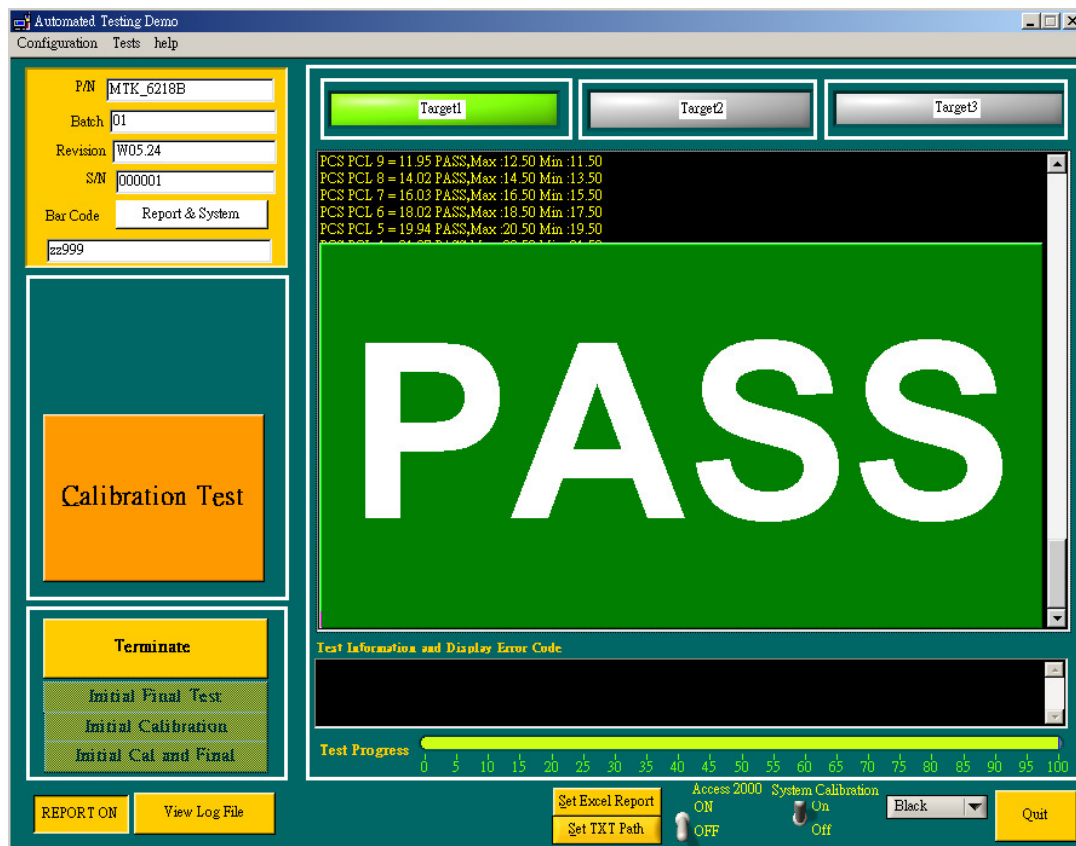
## Key-in your phone bar Code



## Press your phone of power on key and Start calibration



Calibration is ok and will show “PASS”

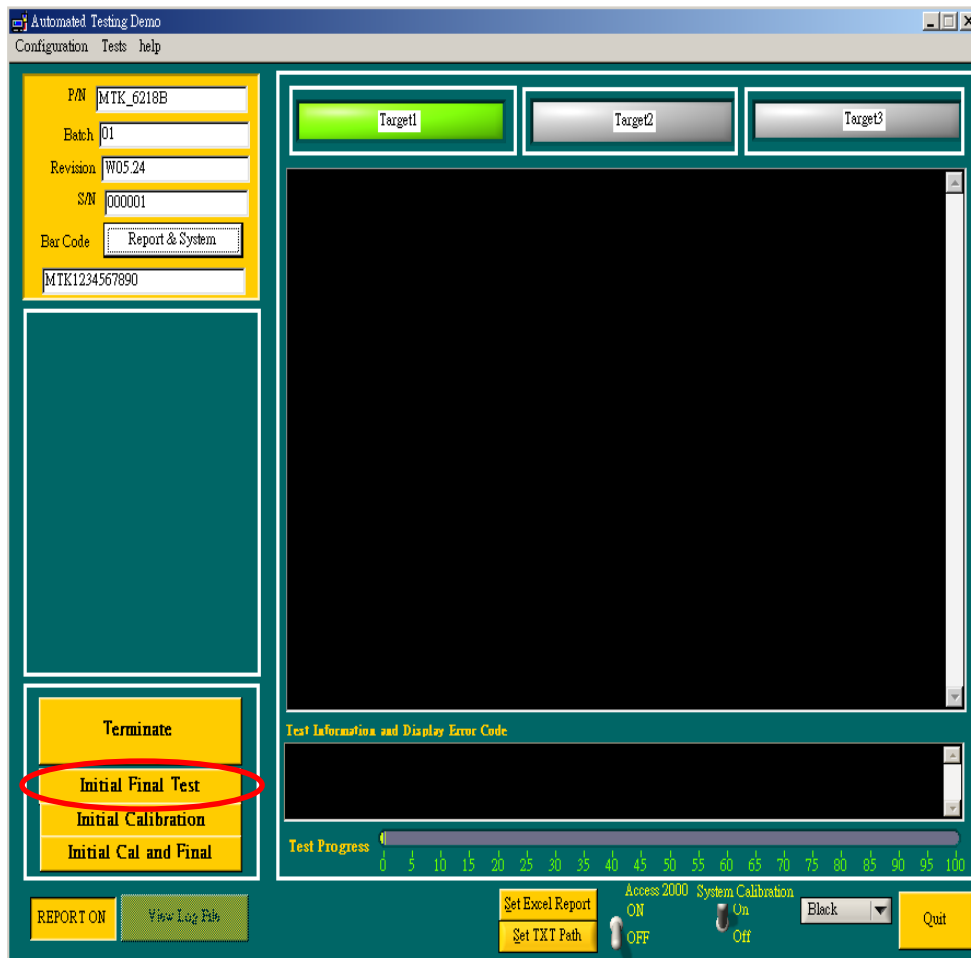


You can see the test report

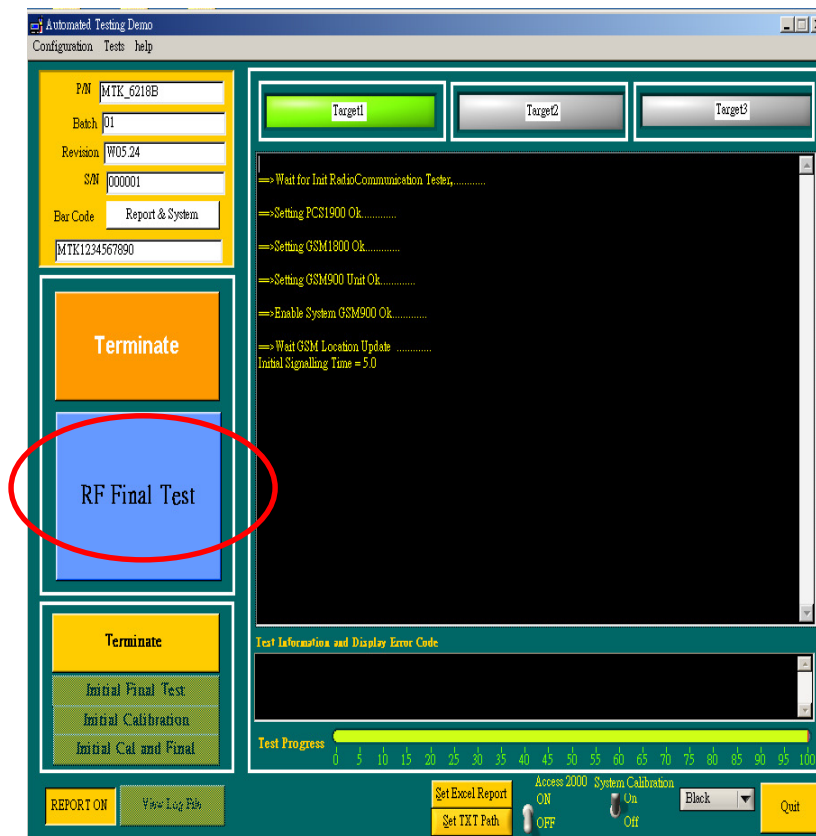
```
-----
ATE Tool Version:5.0.3
Part Number: MTK_6218B
Serial Number: 000001
Revision: W05.24
Batch: 01
Bar Code: qqq
Error Code: 000
-----

==>Wait GSM Location Update .....
Enter into META Mode OK
AFC Calibration OK
Slope=2.824,min:1.000,max:10.000
Use Default Value=3836
AFC Calibration time=1.64(sec)
PL GSM TCH 15 = 1.25 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 30 = 1.00 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 45 = 0.88 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 60 = 1.25 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 75 = 1.38 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 80 = 1.50 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 100 = 1.25 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 124 = 1.25 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 975 = 1.50 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 1000 = 1.38 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 1023 = 1.00 Pass MAX:3.00 MIN:-3.00
PL DCS TCH 550 = 0.50 Pass MAX:3.00 MIN:-3.00
PL DCS TCH 590 = 1.00 Pass MAX:3.00 MIN:-3.00
```

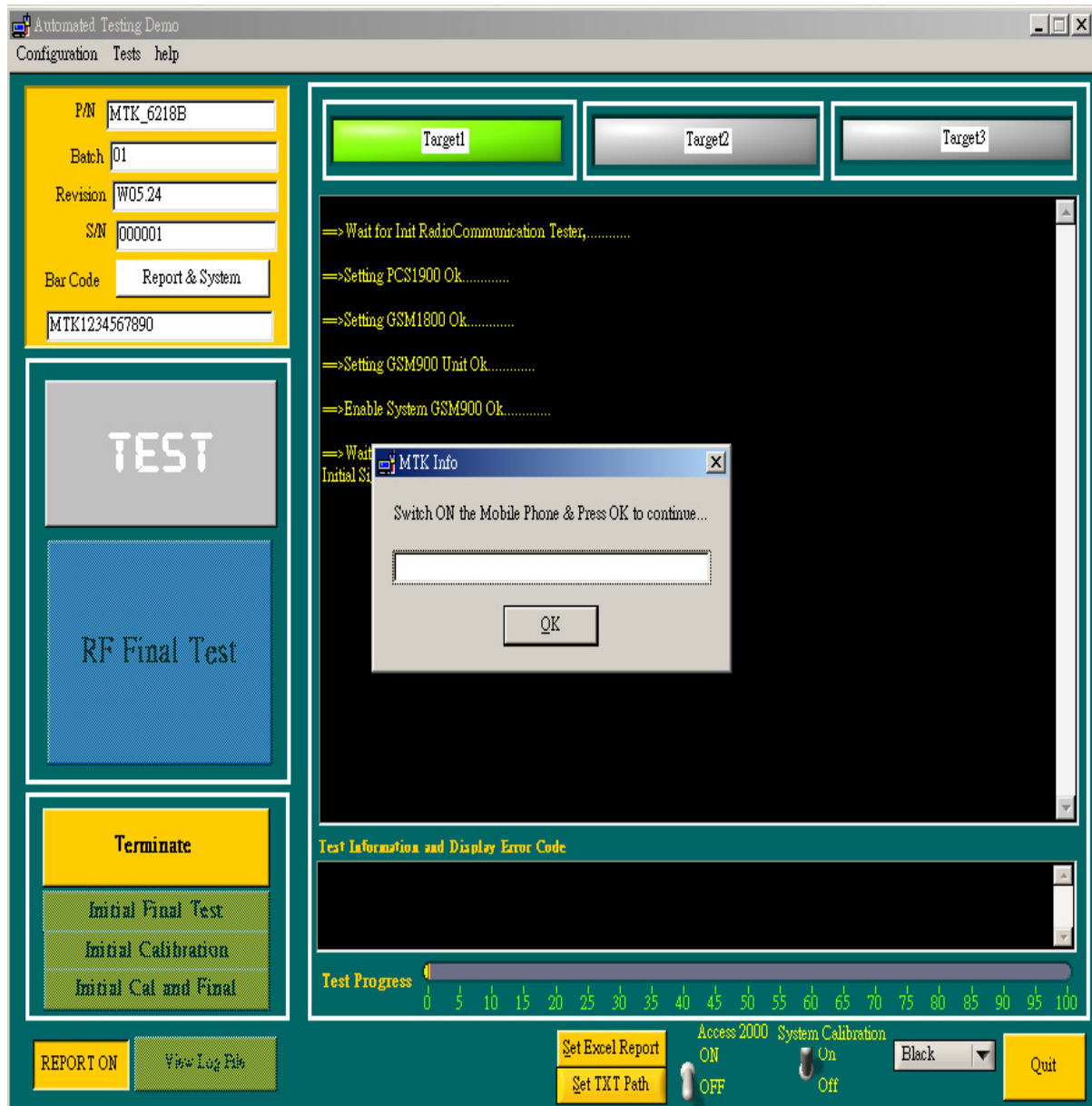
If you want final test , you can press “initial final test “



Press “RF Final test”



1. Handset to insert SIM card
2. Key-in bar code or IMEI number
3. Power on handset



## ATE start final test

Automated Testing Demo  
Configuration Tests help

P/N: MTK\_6218B  
Batch: 01  
Revision: W05.24  
S/N: 000001  
Bar Code: Report & System  
zz999

**TEST**

**RF Final Test**

**Terminate**

Initial Final Test  
Initial Calibration  
Initial Cal and Final

REPORT ON View Log File

Set Excel Report  
Set TXT Path

Access 2000 System Calibration  
ON OFF On Off

Black Quit

Target1 Target2 Target3

GSM Band TCH 124, PCL 5

Avg. Burst Power (Avg.) [dBm] = 32.228660 Pass  
Peak Burst Power [dBm] = 32.228660 Pass  
Burst Power Matching = 0 Pass  
Maximum phase error peak [deg] = 5.259489 Pass  
Maximum phase error RMS [deg] = 2.343793 Pass  
Maximum frequency error [Hz] = -20.146050 Pass  
Timing Advance error = 0.000000 Pass  
Rx Level = 29 Pass  
Rx Quality = 0 Pass  
Class II = 0.029904 Pass  
Class Ib = 0.000000 Pass  
Modulation +400kHz = -66.839870  
Modulation -400kHz = -65.896740 PASS  
Modulation +600kHz = -68.604150  
Modulation -600kHz = -69.584160 PASS  
Modulation +1.2MHz = -71.047200  
Modulation -1.2MHz = -70.857630 PASS  
Modulation +1.8MHz = -78.453870  
Modulation -1.8MHz = -79.476660 PASS  
Modulation = 0 Pass  
Switching +400kHz = -31.559020  
Switching -400kHz = -30.744700 PASS  
Switching +1.8MHz = -43.066520  
Switching -1.8MHz = -40.874710 PASS  
Switching = 0 Pass

Test Information and Display Error Code

Test Progress 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100



If ATE test finish , ATE will show pass

The screenshot displays the 'Automated Testing Demo' software interface. The window title is 'Automated Testing Demo' with a menu bar containing 'Configuration', 'Tests', and 'help'. On the left, a yellow panel contains input fields for 'P/N' (MTK\_6218B), 'Batch' (01), 'Revision' (W05.24), 'S/N' (000001), and 'Bar Code' (zz999). Below these is a blue box labeled 'RF Final Test'. Further down is a yellow 'Terminate' button and three green buttons: 'Initial Final Test', 'Initial Calibration', and 'Initial Cal and Final'. At the bottom left are 'REPORT ON' and 'View Log File' buttons. The main area features three target status boxes at the top: 'Target1' (green), 'Target2' (grey), and 'Target3' (grey). Below them, a large green box displays 'PASS' in white text. Above this box, test results are shown: 'PCS Band TCH 810, PCL 0', 'Avg. Burst Power (Avg.) [dBm] = 29.152090 Pass', and 'Peak Burst Power [dBm] = 29.152090 Pass'. Below the 'PASS' box is a section for 'Test Information and Display Error Code' with an empty text area. A 'Test Progress' bar is shown with a scale from 0 to 100, currently at approximately 35%. The bottom right contains buttons for 'Set Excel Report', 'Set TXT Path', 'Access 2000' (ON/OFF), 'System Calibration' (On/Off), a 'Black' dropdown menu, and a 'Quit' button.

Automated Testing Demo  
Configuration Tests help

P/N MTK\_6218B  
Batch 01  
Revision W05.24  
S/N 000001  
Bar Code Report & System  
zz999

RF Final Test

Terminate  
Initial Final Test  
Initial Calibration  
Initial Cal and Final

REPORT ON View Log File

Target1 Target2 Target3

PCS Band TCH 810, PCL 0  
Avg. Burst Power (Avg.) [dBm] = 29.152090 Pass  
Peak Burst Power [dBm] = 29.152090 Pass

PASS

Test Information and Display Error Code

Test Progress 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

Set Excel Report Set TXT Path Access 2000 ON OFF System Calibration On Off Black Quit

You can see the test report

```
-----
ATE Tool Version:5.0.3
Part Number: MTK_6218B
Serial Number: 000001
Revision: W05.24
Batch: 01
Bar Code: qqg
Error Code: 000
-----

==>Wait GSM Location Update .....
Enter into META Mode OK
AFC Calibration OK
Slope=2.824,min:1.000,max:10.000
Use Default Value=3836
AFC Calibration time=1.64(sec)
PL GSM TCH 15 = 1.25 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 30 = 1.00 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 45 = 0.88 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 60 = 1.25 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 75 = 1.38 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 80 = 1.50 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 100 = 1.25 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 124 = 1.25 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 975 = 1.50 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 1000 = 1.38 Pass MAX:3.00 MIN:-3.00
PL GSM TCH 1023 = 1.00 Pass MAX:3.00 MIN:-3.00
PL DCS TCH 550 = 0.50 Pass MAX:3.00 MIN:-3.00
PL DCS TCH 590 = 1.00 Pass MAX:3.00 MIN:-3.00
```



If you want initial cal and final test , you can press “initial cal and final test”

**Automated Testing Demo**  
Configuration Tests help

P/N: MTK\_6218B  
Batch: 01  
Revision: W05.24  
S/N: 000001  
Bar Code: Report & System  
MTK1234567890

Target1 Target2 Target3

Test Information and Display Error Code

Test Progress: 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

REPORT ON View Log File

Set Excel Report Set TXT Path

Access 2000: ON OFF  
System Calibration: On Off

Black Quit

Press "Cal & Final"

Automated Testing Demo

Configuration Tests help

P/N MTK\_6218B

Batch 01

Revision W05.24

S/N 000001

Bar Code Report & System

MTK1234567890

Terminate

Cal & Final

Terminate

Initial Final Test

Initial Calibration

Initial Cal and Final

Target1 Target2 Target3

Test Information and Display Error Code

Test Progress 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

- 1.Handset to insert SIM card
- 2.Key-in bar code or IMEI number
- 3.Power on handset

Automated Testing Demo

Configuration Tests help

P/N: MTK\_6218B

Batch: 01

Revision: W05.24

S/N: 000001

Bar Code: Report & System

MTK1234567890

Cal

Cal & Final

Terminate

Initial Final Test

Initial Calibration

Initial Cal and Final

Target1 Target2 Target3

MTK Info

Please Scan bar Code & Press OK to continue...

OK

Test Information and Display Error Code

Test Progress

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

## Start calibration

Automated Testing Demo  
Configuration Tests help

P/N: MTK\_6218B  
Batch: 01  
Revision: W05.24  
S/N: 000001  
Bar Code: Report & System  
zz999

**Cal**

**Cal & Final**

**Terminate**

Initial Final Test  
Initial Calibration  
Initial Cal and Final

Target1 Target2 Target3

PL DCS TCH 710 = 0.00 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 740 = 0.00 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 770 = 0.25 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 810 = 0.50 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 850 = 0.38 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 885 = 0.50 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 550 = 1.25 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 590 = 1.12 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 620 = 1.12 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 650 = 1.12 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 680 = 1.25 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 710 = 1.25 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 740 = 1.50 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 770 = 1.38 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 810 = 1.62 Pass MAX:3.00 MIN:-3.00  
Path Loss Calibration OK  
Pathloss Calibration time=0.31(sec)  
-----GSM900 APC Cal-----  
delta s=0  
Cal APC Power:19.03  
delta s=0  
Cal APC Power:32.24  
-----DCS1800 APC Cal-----  
delta s=0  
Cal APC Power:13.96  
delta s=0  
Cal APC Power:29.20  
-----PCS1900 APC Cal-----

Test Information and Display Error Code

Test Progress 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

Calibration finish and power on handset again

Automated Testing Demo  
Configuration Tests help

P/N: MTK\_6218B  
Batch: 01  
Revision: W05.24  
S/N: 000001  
Bar Code: Report & System  
999

TEST

Cal & Final

Terminate

Initial Final Test  
Initial Calibration  
Initial Cal and Final

REPORT ON View Log File

Set Excel Report  
Set TXT Path

Access 2000 ON OFF  
System Calibration On OFF

Black Quit

Target1 Target2 Target3

Enter into META Mode OK  
APC Calibration OK  
Slope=2.816,min:1.000,max:10.000  
Use Default Value=3803  
APC Calibration time=1.67(sec)  
PL GSM TCH 15 = 1.25 Pass MAX:3.00 MIN:-3.00  
PL GSM TCH 30 = 1.12 Pass MAX:3.00 MIN:-3.00  
PL GSM TCH 45 = 0.88 Pass MAX:3.00 MIN:-3.00  
PL GSM TCH 60 = 1.12 Pass MAX:3.00 MIN:-3.00  
PL GSM TCH 75 = 1.50 Pass MAX:3.00 MIN:-3.00  
PL GSM TCH 80 = 1.50 Pass MAX:3.00 MIN:-3.00  
PL GSM TCH 100 = 1.38 Pass MAX:3.00 MIN:-3.00  
PL GSM TCH 124 = 1.38 Pass MAX:3.00 MIN:-3.00  
PL GSM TCH 975 = 1.50 Pass MAX:3.00 MIN:-3.00  
PL GSM TCH 1000 = 1.38 Pass MAX:3.00 MIN:-3.00  
PL GSM TCH 1023 = 1.12 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 550 = 0.62 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 590 = 1.12 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 620 = 1.00 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 650 = 0.62 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 680 = 0.25 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 710 = 0.12 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 740 = 0.12 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 770 = 0.25 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 810 = 0.62 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 850 = 0.38 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 885 = 0.62 Pass MAX:3.00 MIN:-3.00

Test Information and Display Error Code

Test Progress 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

## Start final test

Automated Testing Demo
Configuration Tests help

P/N MTK\_6218B  
Batch 01  
Revision W05.24  
S/N 000001  
Bar Code Report & System  
zz999

Cal

Cal & Final

Terminate

Initial Final Test  
Initial Calibration  
Initial Cal and Final

Target1

Target2

Target3

PL DCS TCH 710 = 0.00 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 740 = 0.00 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 770 = 0.25 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 810 = 0.50 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 850 = 0.38 Pass MAX:3.00 MIN:-3.00  
PL DCS TCH 885 = 0.50 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 550 = 1.25 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 590 = 1.12 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 620 = 1.12 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 650 = 1.12 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 680 = 1.25 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 710 = 1.25 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 740 = 1.50 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 770 = 1.38 Pass MAX:3.00 MIN:-3.00  
PL PCS TCH 810 = 1.62 Pass MAX:3.00 MIN:-3.00  
Path Loss Calibration OK  
Pathloss Calibration time=8.31(sec)  
-----GSM900 APC Cal-----  
delta s = 0  
Cal APC Power:19.03  
delta s = 0  
Cal APC Power:32.24  
-----DCS1800 APC Cal-----  
delta s = 0  
Cal APC Power:13.96  
delta s = 0  
Cal APC Power:29.20  
-----PCS1900 APC Cal -----

Test Information and Display Error Code

Test Progress

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

## Finish "Cal & Final test"

Automated Testing Demo  
Configuration Tests help

P/N MTK\_6218B  
Batch 01  
Revision W05.24  
S/N 000001  
Bar Code Report & System  
qq88

Target1 Target2 Target3

PCS Band TCH 810, PCL 0  
Avg. Burst Power (Avg.) [dBm] = 29.143900 Pass  
Peak Burst Power [dBm] = 29.143900 Pass

# PASS

Cal & Final

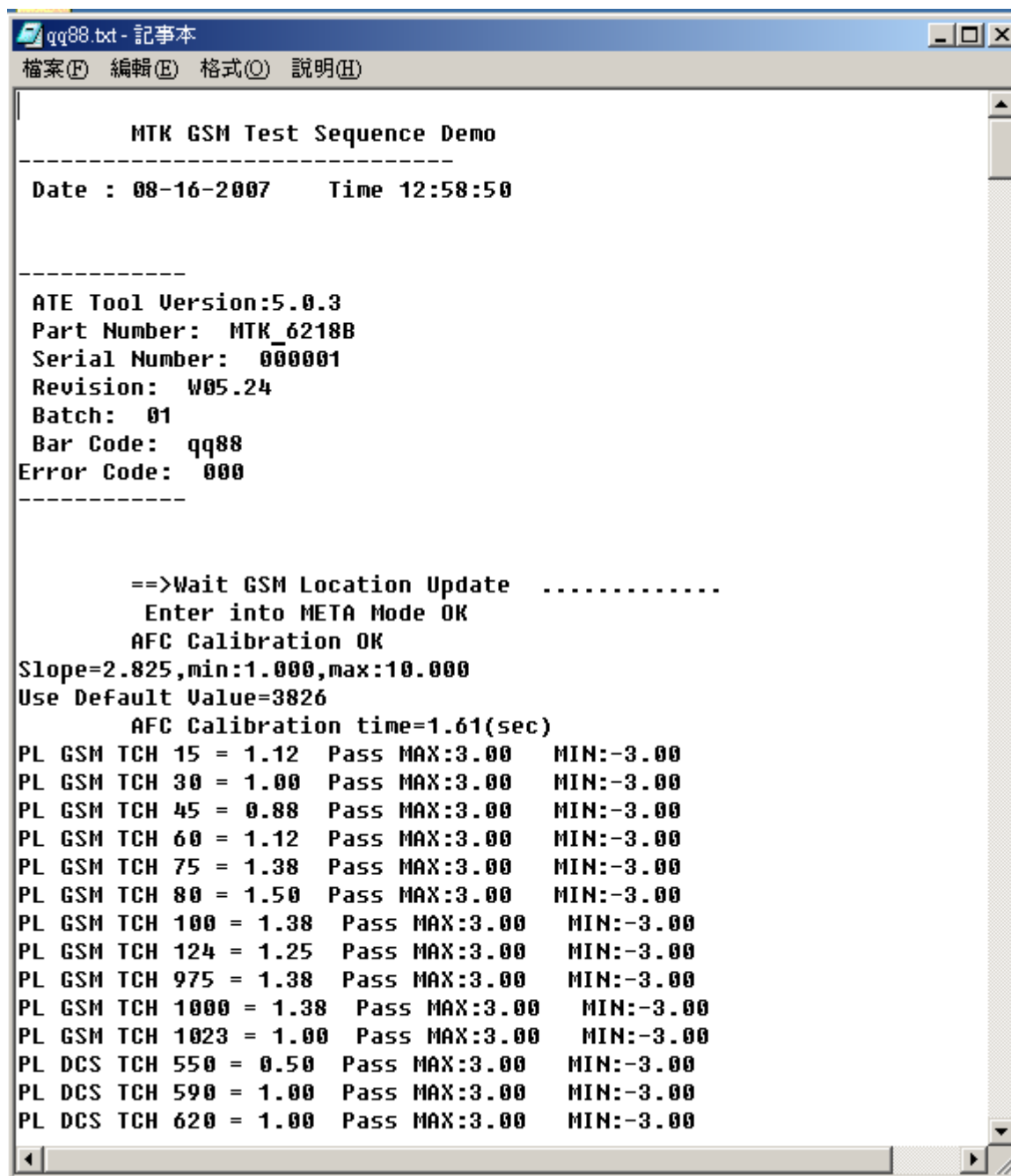
Terminate  
Initial Final Test  
Initial Calibration  
Initial Cal and Final

Test Information and Display Error Code

Test Progress 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

REPORT ON View Log File Set Excel Report Set TXT Path Access 2000 ON OFF System Calibration On Off Black Quit

Ate show the test report



qq88.txt - 記事本

檔案(F) 編輯(E) 格式(O) 說明(H)

MTK GSM Test Sequence Demo

-----

Date : 08-16-2007 Time 12:58:50

-----

ATE Tool Version:5.0.3  
Part Number: MTK\_6218B  
Serial Number: 000001  
Revision: W05.24  
Batch: 01  
Bar Code: qq88  
Error Code: 000

-----

==>Wait GSM Location Update .....

Enter into META Mode OK

AFC Calibration OK

Slope=2.825,min:1.000,max:10.000

Use Default Value=3826

AFC Calibration time=1.61(sec)

PL GSM TCH 15 = 1.12 Pass MAX:3.00 MIN:-3.00

PL GSM TCH 30 = 1.00 Pass MAX:3.00 MIN:-3.00

PL GSM TCH 45 = 0.88 Pass MAX:3.00 MIN:-3.00

PL GSM TCH 60 = 1.12 Pass MAX:3.00 MIN:-3.00

PL GSM TCH 75 = 1.38 Pass MAX:3.00 MIN:-3.00

PL GSM TCH 80 = 1.50 Pass MAX:3.00 MIN:-3.00

PL GSM TCH 100 = 1.38 Pass MAX:3.00 MIN:-3.00

PL GSM TCH 124 = 1.25 Pass MAX:3.00 MIN:-3.00

PL GSM TCH 975 = 1.38 Pass MAX:3.00 MIN:-3.00

PL GSM TCH 1000 = 1.38 Pass MAX:3.00 MIN:-3.00

PL GSM TCH 1023 = 1.00 Pass MAX:3.00 MIN:-3.00

PL DCS TCH 550 = 0.50 Pass MAX:3.00 MIN:-3.00

PL DCS TCH 590 = 1.00 Pass MAX:3.00 MIN:-3.00

PL DCS TCH 620 = 1.00 Pass MAX:3.00 MIN:-3.00

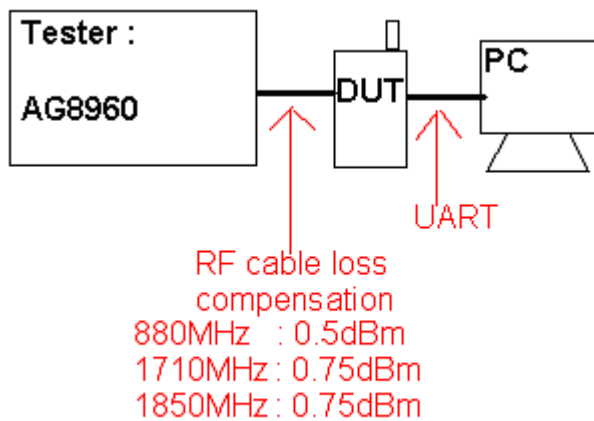


## 12. STAND ALONE TEST

### 12.1 GS205 RF TX & RX Test :

Test Configuration & Expected Outcome

#### Test Configuration :



#### Expected Outcome :

<b>TX</b>	<b>power</b>	<b>: 32.5</b>	<b>+/-</b>	<b>1.5 dBm</b>	<b>for GSM900</b>
<b>TX</b>	<b>power</b>	<b>: 29.5</b>	<b>+/-</b>	<b>1.5 dBm</b>	<b>for DCS1800, PCS1900</b>
<b>RX</b>	<b>power</b>	<b>: -85</b>	<b>+/-</b>	<b>4 dBm</b>	<b>for GSM900, DCS1800, PCS1900</b>

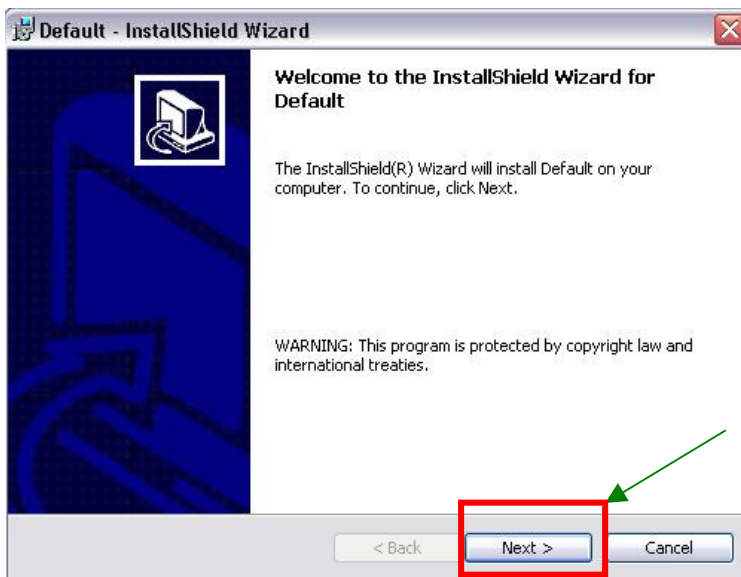
## 12.2 META Install & RF TX & RX Check

### META Tool Install process :

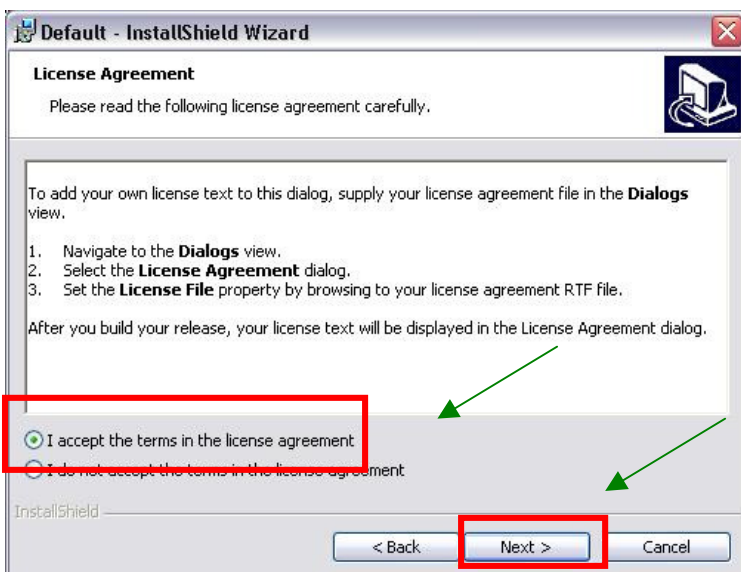
(1) Press “setup.exe” then press



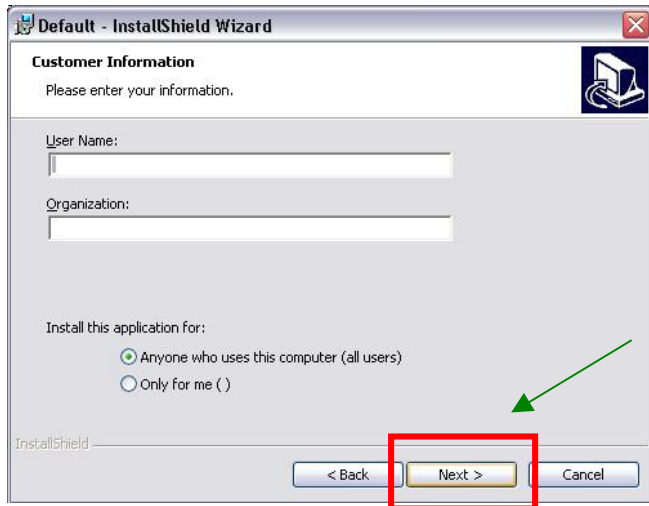
(2) Install Process – press “Next”



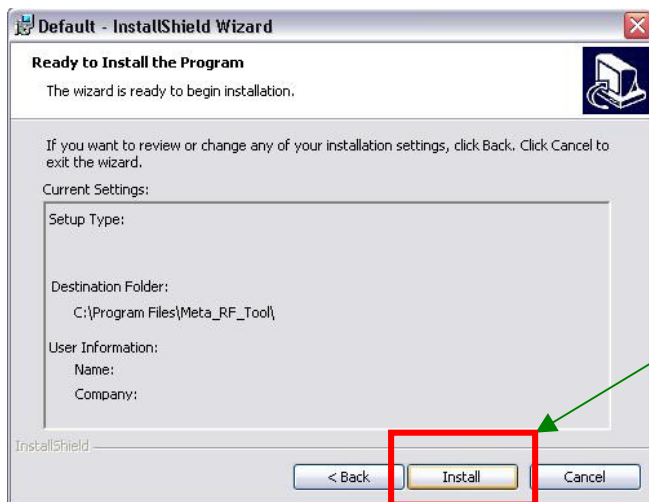
(3) Install Process – press “Next”



#### (4) Install Process – press “Next”



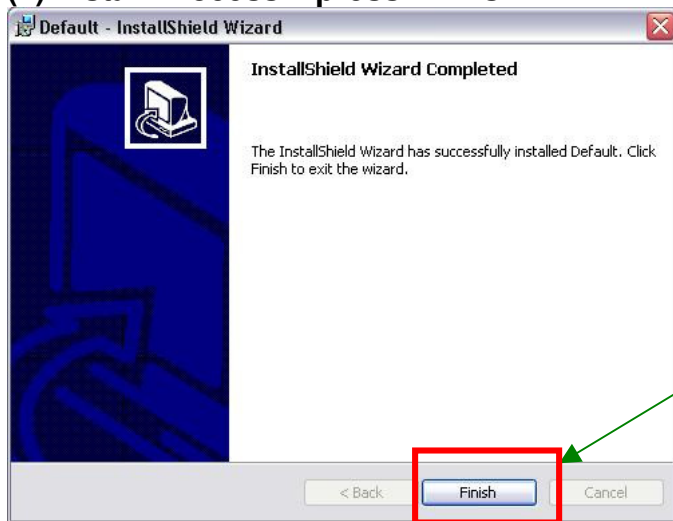
#### (5) Install Process – press “Next”



#### (6) Install Process



## (7) Install Process – press “Finish”



## **12.3 RF RX Check :**

**(1) Open “ Meta\_RF\_Tool ”**



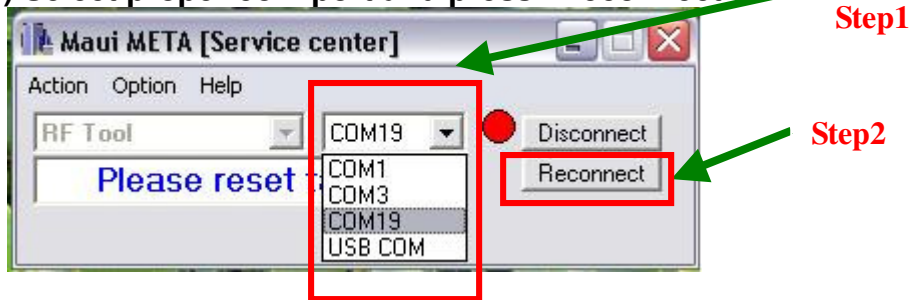
**(2) Pull in UART cable**



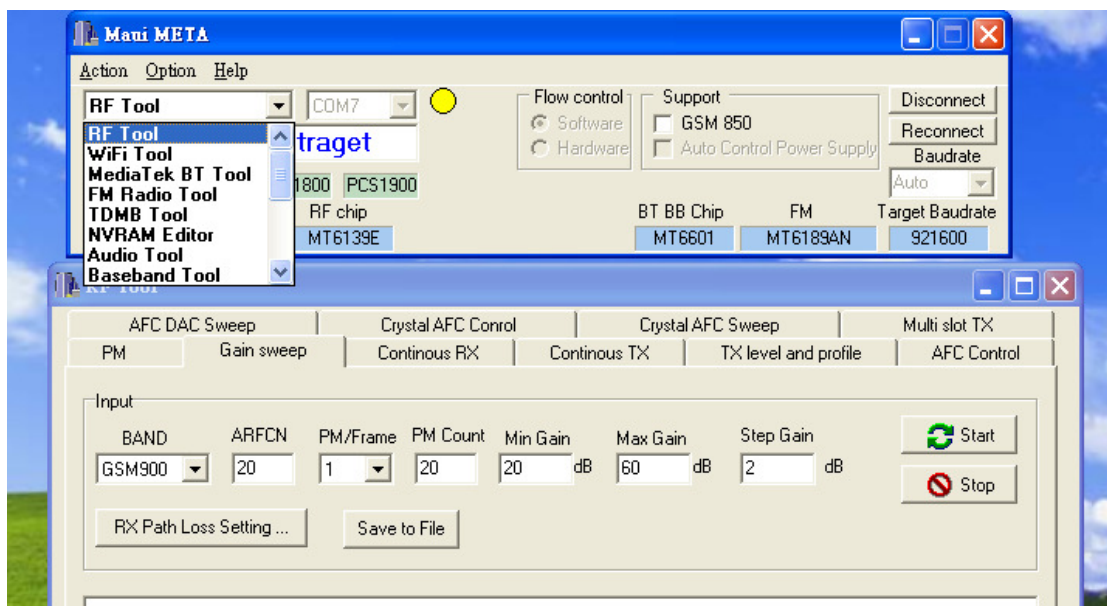
**(3) Inset RF-Cable (AG8960)**



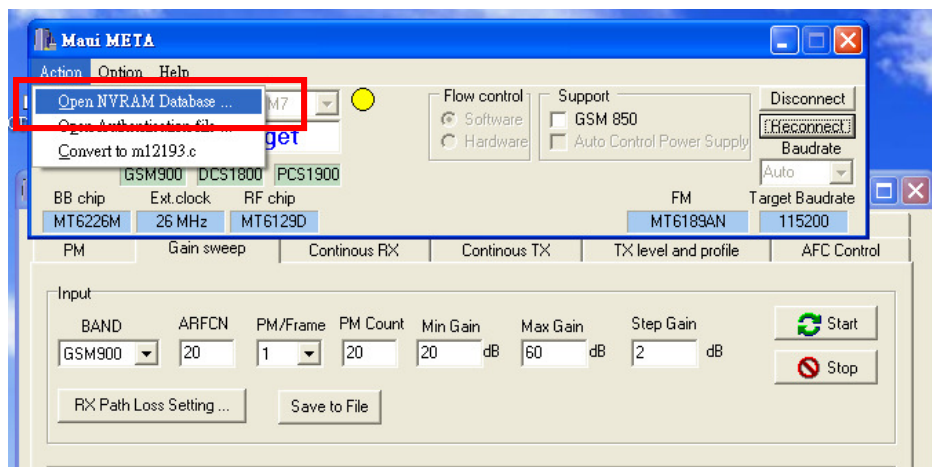
(4) Select proper com port and press “Reconnect”



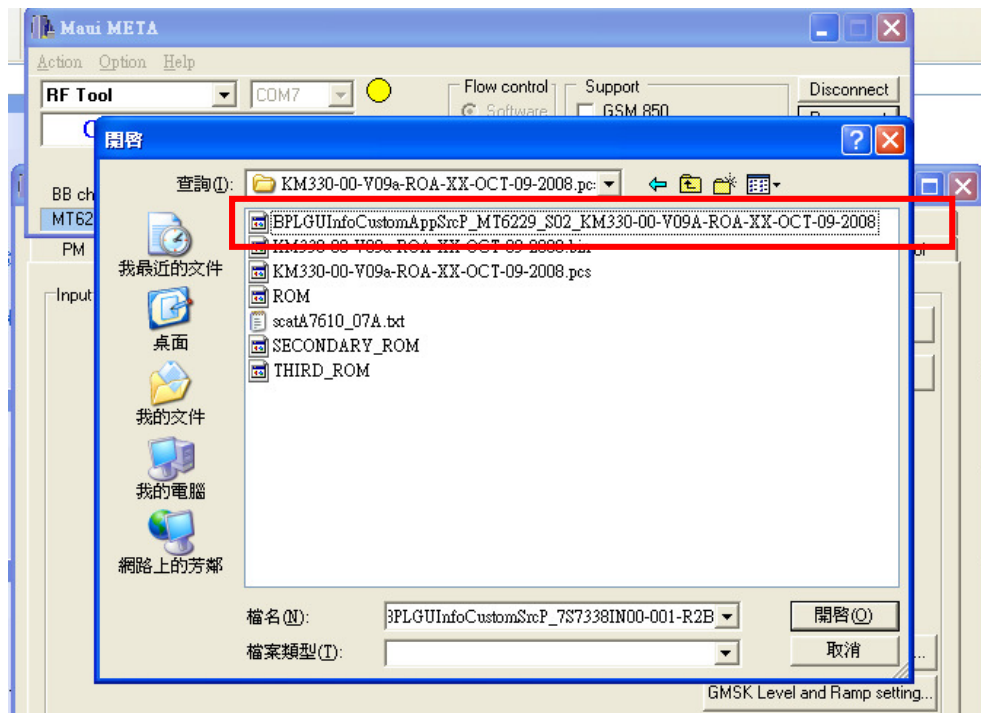
(5) Press handset's power key and it will show LG logo. Then appear the following picture. Select RF Tool.



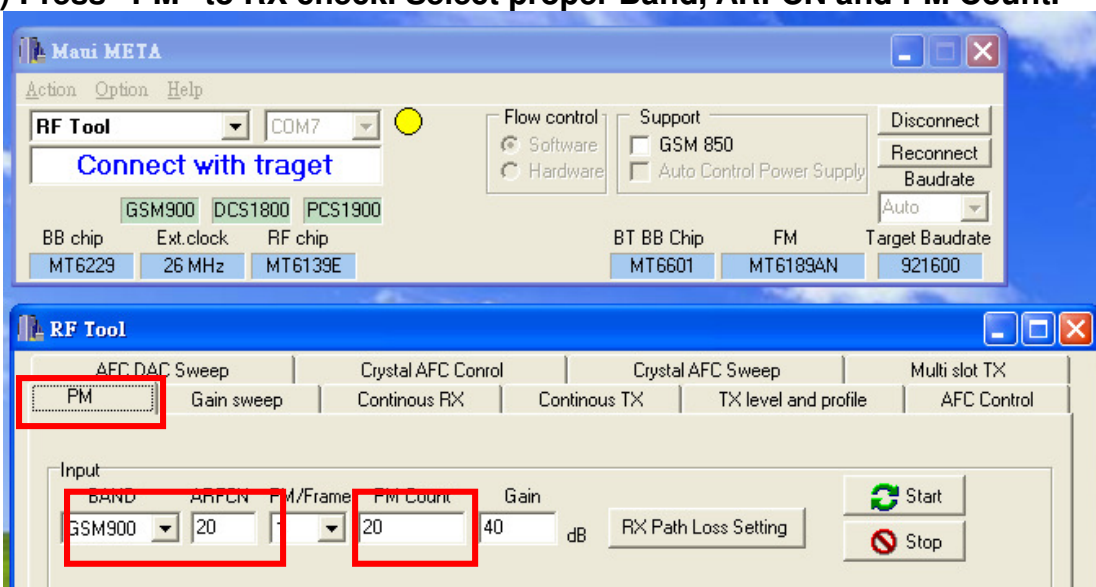
(6) Loading database Make sure the same to handset.





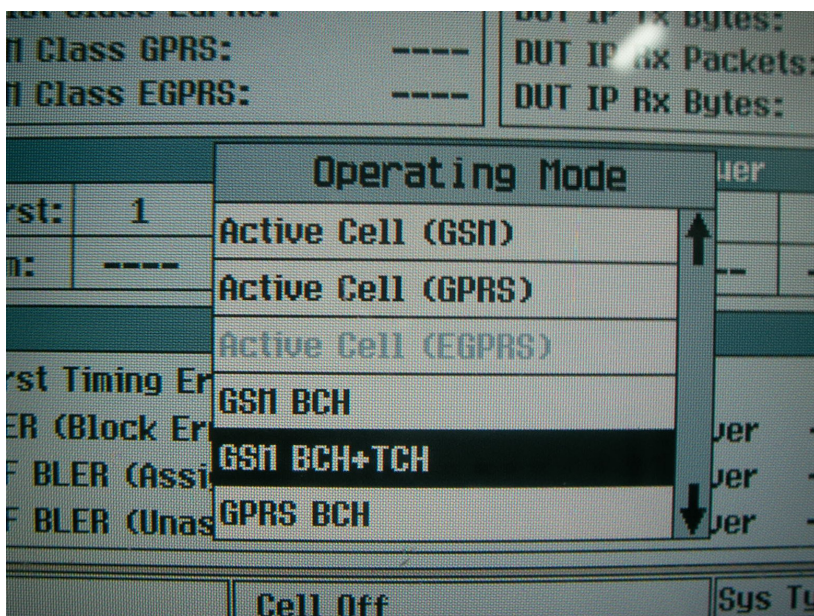
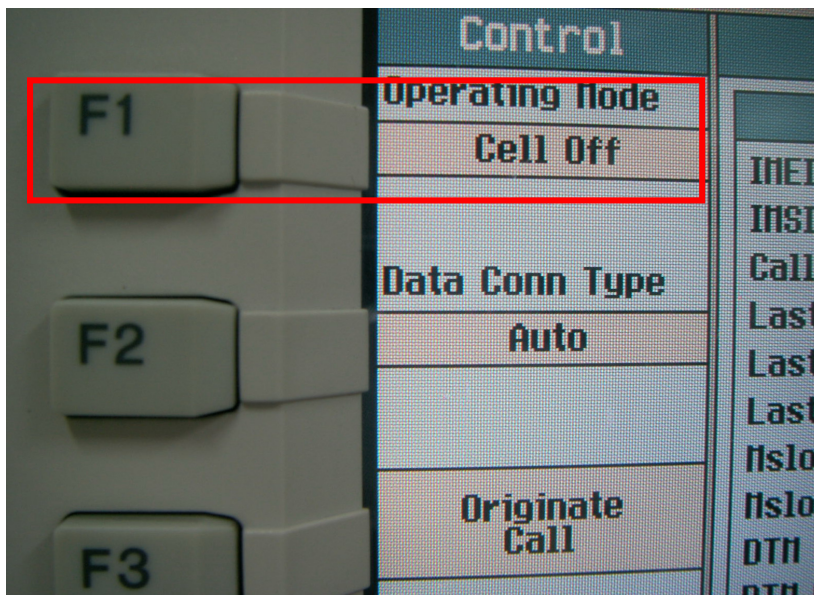


(7) Press “PM” to RX check. Select proper Band, ARFCN and PM Count.



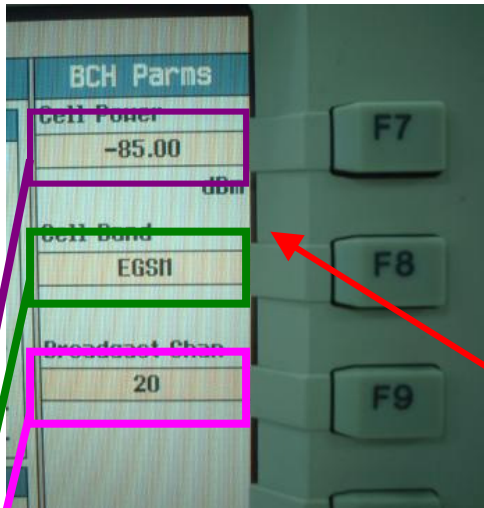
(8) Setup AG8960: Press CALL SETUP, Than press “F1”,and select “GSM BCH+TCH”.





(9) **RX Test (AG8960)**--- Set "BCH Parm's" ,





(10) **PX Test** --- Press Start then Only check top 5 items

Maui META [Service center]

Action Option Help

RF Tool COM19 Disconnect Reconnect

Connect with target

GSM900 DCS1800 PCS1900

RF Tool

RX TX

Input

BAND ARFCN

GSM900 20

Start Stop

BAND	ARFCN	DSP Power	Ant. Power	Used Gain	Deviation	I_DC	Q_DC	Valid sample
GSM900	20	-65.375	-84.625	19.250	2.298	-5	-27	20
GSM900	20	-63.375	-84.625	21.250	4.241	10	-36	20
GSM900	20	-61.250	-84.500	23.250	4.481	-9	-53	20
GSM900	20	-59.375	-84.625	25.250	3.252	-4	-12	20
GSM900	20	-57.500	-84.750	27.250	2.301	-14	-19	20

1. Select Band (GSM/DCS/PCS)
2. Set channel members
3. Press "Start"

Check first 5 items, need +/- 4 inside

## 12.4 RF TX Check :

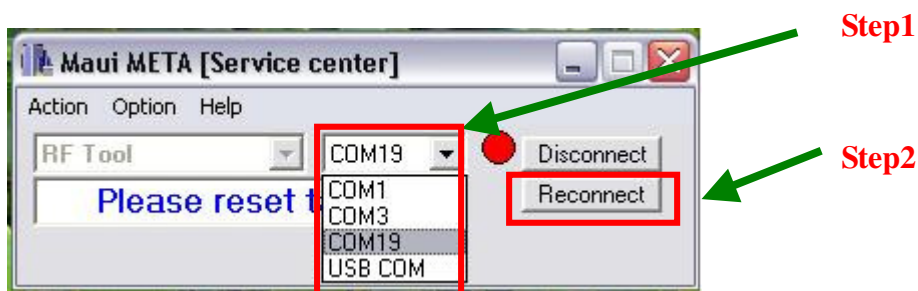
(1) Open “ Meta\_RF\_Tool ”.



(2) Pull in UART cable.

(3) Inset RF-Cable (AG8960).

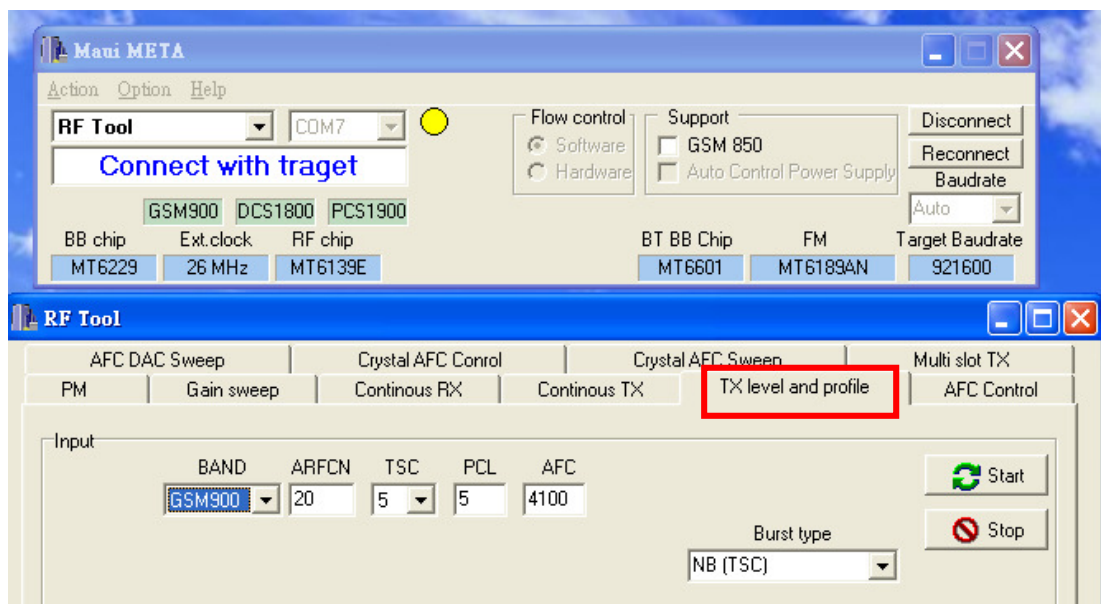
(4) Select proper com port and press “Reconnect” and then press handset’s power key.



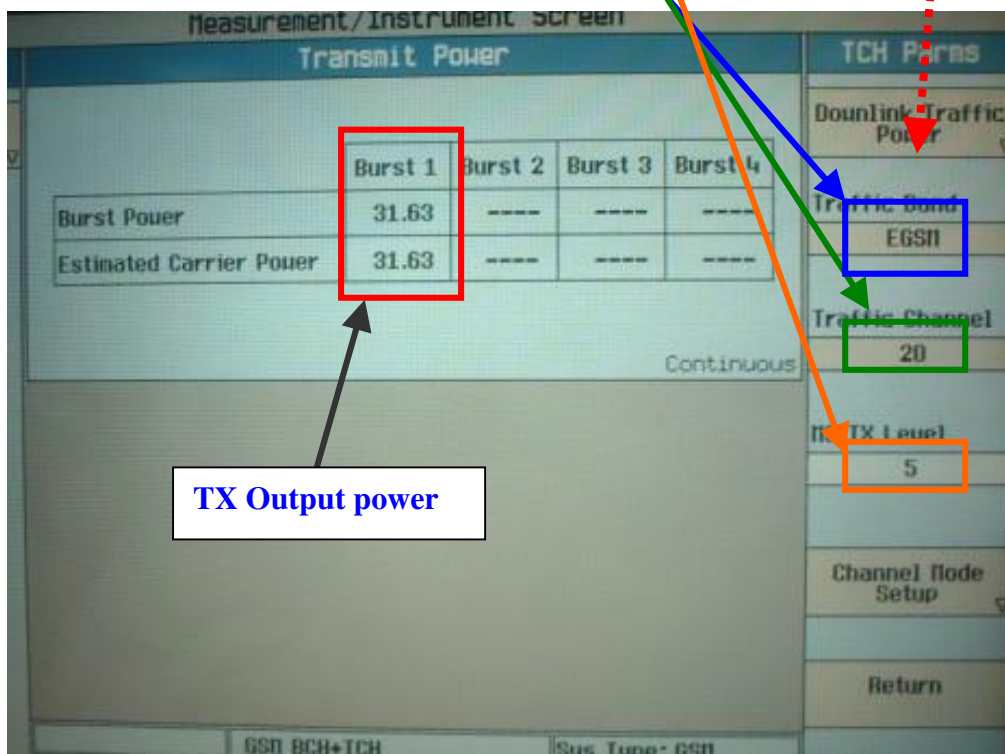
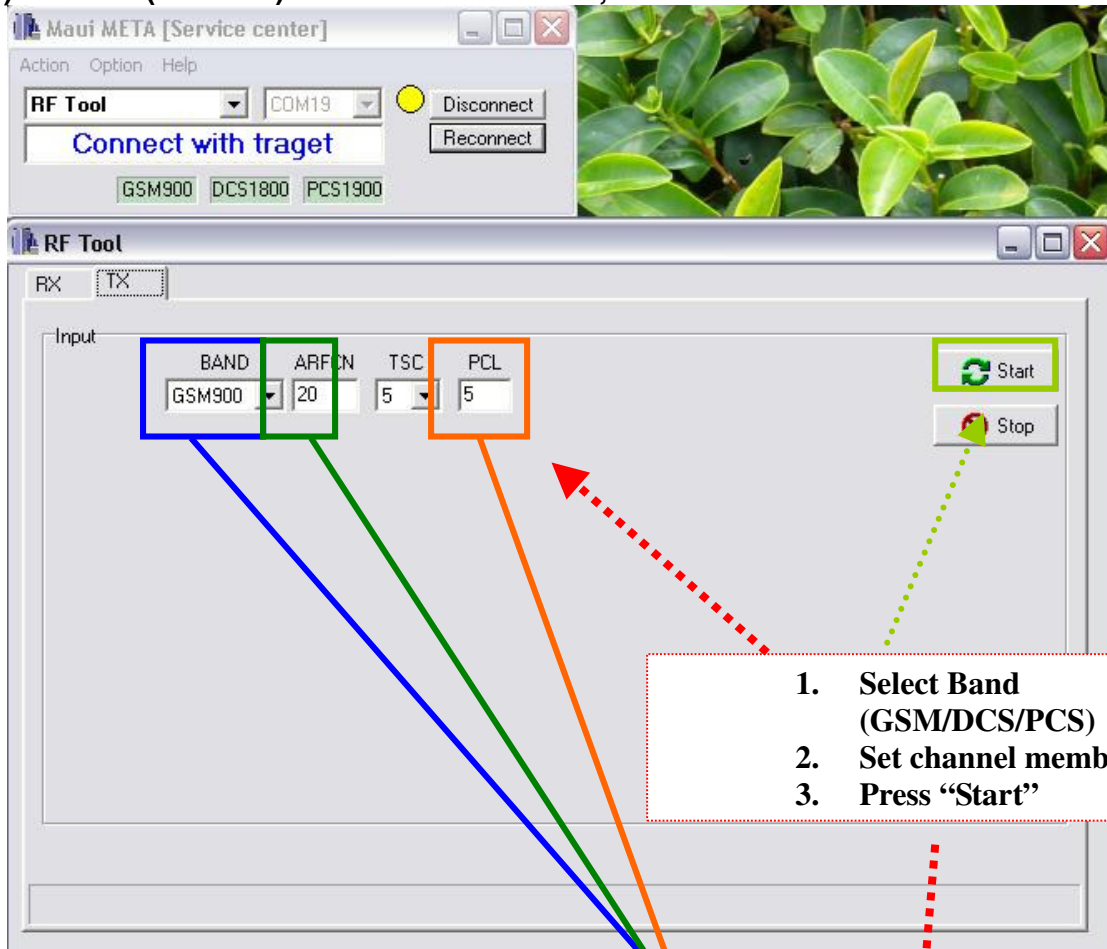
(5) Loading database Make sure the same to handset.

(6) AG8960 need to set TCH Params.

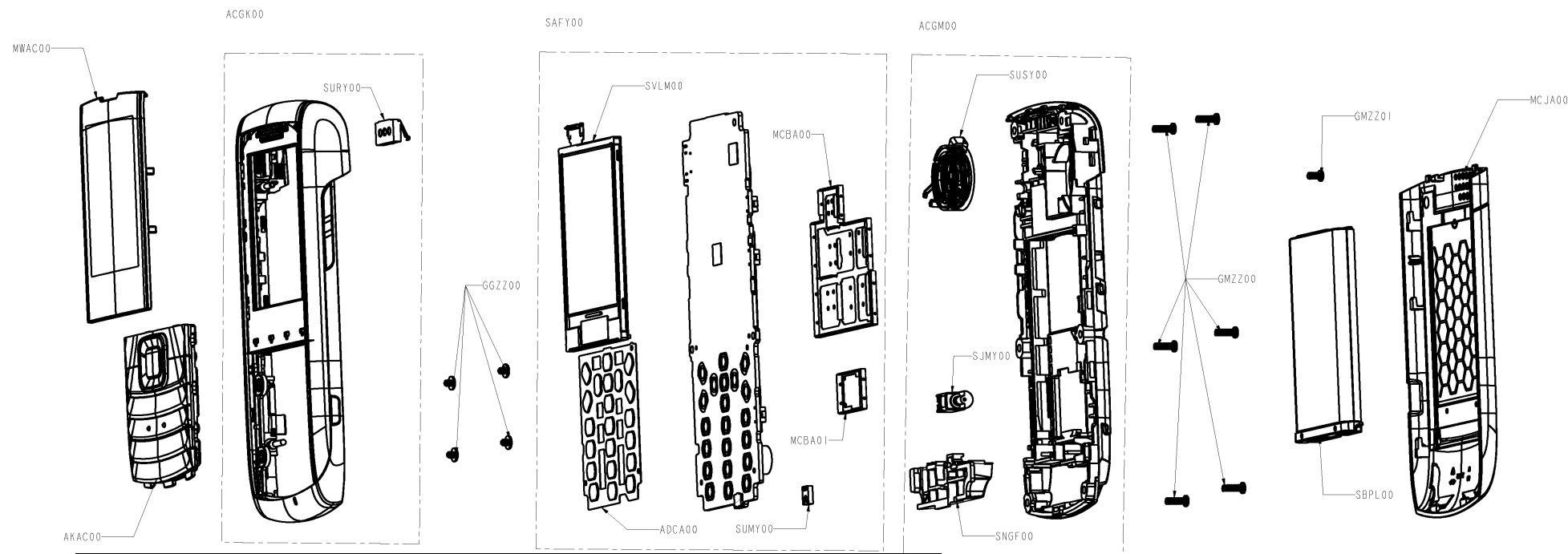
(7) Press “TX level and profile” to TX Test.



**(8) TX Test (AG8960) --- Need set “Band”, “Channel” & “Power Level”**



13. #EV#



Location No	Part description	Location No	Part description
MWAC00	WINDOW,LCD	SAFY00	PCB ASS'Y,MAIN
AKAC00	KEYPAD ASS'Y,MAIN	SUSY00	SPEAKER
SURY00	RECEIVER	SJMY00	VIBRATOR,MOTOR
ACGK00	COVER ASS'Y,FRONT	SNGF00	ANTENNA,GSM,FIXED
GGZZ00	TAPPING SCREW	ACGM00	COVER ASS'Y,REAR
SVLM00	LCD MODULE	GMZZ00	MACHINE SCREW
ADCA00	DOME ASS'Y,METAL	GMZZ01	MACHINE SCREW
SUMY00	MICROPHONE	SBPL00	BATTERY PACK,LI-ION
MCBA01	CAMERA	MCJA00	COVER,BATTERY
MCBA00	CAN,SHIELD		

Level	Part name	Arima part Number	LG part Number	Description	Qty	Remark.
.1	Battery	306-0000-00071	SBPL0090501	Li-ion Battery Cell Packing_3.7V_950mAh_BLACK_LGIP-531A-SBPL0090501_LG INNOTEK_Bar code:SBPL0090501	1	LG33 Common use
.1	Charger	331-0000-00151	SSAD0031502	Travel Charger_100~240V_5.10V_700mA_FCC_STA-U12IS_EN50075_REX_SALCOMP_N/A	1	LG33 Common use
.1	Headset	333-0000-00078	SGEY0003745	Headset Stereo Channel_Type_EMB-LGE004MSKJ_16 Ohm_Mic.S/N'58'dB_-38'dB_PT.CRESYN_Micro USB 5PIN	1	LG33 Common use
.1	Data cable	410-7325000001	SGDY0017601	Data Cable_7325_JESS-LINK_USB 4P to MICRO USB 5P,L=1250 mm	1	LG33 Common use
.1	GIFT BOX LABEL	478-7125IN-002	MBEF0141104	GIFT BOX LABEL_Packing Label_7125_India_HIGH TEMP. ART PAPER_FOR LG_E-LIN(KUNSHAN)		
.1	PE bag	479-00000-0048	MBAD0005204	Plastic Bag_0.03mm_PE_XINSHANCUN(SUZHOU)_479-00000-0048_FOR ESD	1	
.1	Screw	409-00000-0112	GMZZ0027301	Machine Screw_Flat_Cross(JCIS)_1.6mm_5.0mm_BLACK_Steel_Plating Zinc_KUAOLENG(SHANGHAI)_NYLOK	6	
.1	Screw	409-00000-0082	GMZZ0030501	Machine Screw_Flat_Cross(JCIS)_1.6mm_3mm_BLACK_Steel_Plating Zinc_KUAOLENG(SHANGHAI)_Nyllok	1	
.1	Screw	409-00000-0113	GTZZ0001501	Tapping Screw_Flat_Cross(JCIS)_1.6mm_1.6mm_BLACK_Steel_Plating Zinc_KUAOLENG(SHANGHAI)_N/A	4	
.1	Battery Cover	405-72630-0001	MCJA0119701	Cover_7263_GRAY_PC_Painting_Battery Cover +FM Antenna_SKYCROSS_N/A		
.1	Front Cover Sub-Ass'y	8M-726300-0001	ACGK0169001	Front Cover Sub-Ass'y_7263_BLACK+DARK GRAY_Including Accessory	1	
.2	Front Cabinet	401-72630-0001	MCJK0134501	Front Cabinet_7263_BLACK_PC_Painting_Front Cabinet Ass'y_A-TEK PRECISION(SUZHOU)_N/A	1	
.2	Main Lens	403-72630-0002	MWAC0151301	Lens_7263_BLACK_PMMA_N/A_MAIN LENS_LIAN_IML	1	
.2	LCM Connector Sponge	415-72210-0026	MPBU0111001	GASKET_7221_BLACK_PORON_N/A_LCM Connector Sponge_RIVER-TECH_N/A	1	
.1	Main key	404-72630-0001	AKAC0018701	Key_7263_BLACK_PC+ABS+Rubber_Painting_HINDI_Main Keypad_ICHIA(SUZHOU)_N/A	1	
.2	RECEIVER	313-0000-00150	SURY0015001	RECEIVER_SD-1206D-6-A_12.0 * 6.0mm_32 Ohm_112dB_CHANG ZHOU YU CHENG_±3dB,H=2.6mm, add label,Spring	1	LG33 Common use
.2	Side volume key	404-72630-0002	MBJZ0040901	Key_7263_GRAY_PC+TPU_Painting_N/A_Side key_A-TEK PRECISION(SUZHOU)_N/A	1	
.2	Side camera key	404-72630-0003	MBJZ0041101	Key_7263_GRAY_PC+TPU_Painting_N/A_Camera Key_A-TEK PRECISION(SUZHOU)_N/A	1	
.2	SD cap	405-72630-0004	MCCG0025701	Cover_7263_GRAY_PC+TPU_Painting_SD COVER_A-TEK PRECISION(SUZHOU)_N/A	1	
.2	IO cap	405-72630-0003	MCCE0061301	Cover_7263_BLACK_PC+TPU_Painting_IO COVER_A-TEK PRECISION(SUZHOU)_N/A	1	
.2	LCM sponge	415-72630-0015	MPBG0112701	GASKET_7263_BLACK_PORON_N/A_LCM SPONGE_RIVER-TECH_N/A	1	
.2	RCV filter	415-72630-0006	MFBZ0024001	FILTER_7263_BLACK_FELT MESH_N/A_RECEIVER MESH_RIVER-TECH_N/A	1	
.1	Rear Cover Sub- Ass'y	8M-726300-0002	ACGM0168001	Rear Cover Sub- Ass'y_7263_BLACK_Including Accessory	1	
.2	Rear Cabinet	402-72630-0001	MCJN0126701	Rear Cabinet_7263_BLACK_PC_N/A_Rear Cabinet Ass'y_A-TEK PRECISION(SUZHOU)_N/A	1	
.2	BATTERY CONNECTOR	314-0000-00429	ENRY0009501	CON. BATTERY CONNECTOR_HSBC-3P-58_3.000 mm_3 pin_HANSHIN_H=3.9mm	1	
.2	Antenna	330-0000-00185	SNGF0062001	ANTENNA EMBEDDED_7263_DUAL BAND(GSM/DCS)_BLACK_NC046IA86_SKYCROSS_FPC Type	1	

.2	Vibrator	320-0000-00062	SJMY0010301	Vibrator Bar Type_Y0408A-400366302-0021_R2.25+4.5*5.50*13.00mm_LNLON_Spring contact type	1	LG33 Common use
.2	LOUD SPEAKER	313-0000-00165	SUSY0030101	LOUD SPEAKER_YD-171-03_Φ 17.0 mm_8 Ohm_94.0dB_CHANG ZHOU YU CHENG ±3dB,H=3.6mm,Spring contact	1	LG33 Common use
.1	CAMERA COVER	405-72630-0002	MDAY0085301	Cover_7263_BLACK_PC_Painting_CAMERA COVER_A-TEK PRECISION(SUZHOU)_N/A	1	
.2	BT ANT	415-72630-0003	MCIZ0006601	SPRING_7263_SILVER_STAINLESS STEEL_N/A_BLUETOOTH ANTENNA SPRING_EMI STOP_N/A	1	
.2	FM wireless contact pin	415-71250-0010	MCIA0020001	SPRING_7125_GOLD_Be-COPPER_Plating Gold_FM ANTENNA SPRING_EMI STOP_N/A	1	
.2	SPK mesh	415-72630-0008	MFBZ0024101	FILTER_7263_BLACK_FELT MESH_N/A_SPEAKER MESH_RIVER-TECH_N/A	1	
.2	RF connector cap	415-72630-0005	MCCF0071301	SHEET_7263_BLACK_PC_N/A_SHEET FOR RF TEST HOLE_RIVER-TECH_N/A	1	
.1	Main Board Ass'y	8-7263-00-0002	SAFF0286501	Main Board Ass'y_7263_NATURAL_For 7263 MB	1	
...3	X201	305-0000-00101	EXSY0025501	Crystal Oscillator_W-211-133_26.0 MHZ_±10.0ppm_SMD-3.2*2.5mm-4Pin_NDK_NX3225SA	1	LG33 Common use
...3	X301	305-0000-00068	EXSY0024901	Crystal Oscillator_TZ0375A_32.0 MHZ_±10.0ppm_SMD-3.2*2.5mm-4Pin_TAI-SAW_CL = 12pF	1	LG33 Common use
...3	X401	305-0000-00026	EXSY0024801	Crystal Oscillator_Q13MC1461000200_32.768KHZ_±20ppm_SMD-7*1.5mm-4Pin_EPSON TOYOCOM_MC-146 type	1	LG33 Common use
...3	B603	306-0000-00077	SBCL0002501	Li. Button Battery Cell-RTC- Reflowable_3.3V_0.033mAh_NoColor_KS414F ER_KITAGAWA_N/A	1	LG33 Common use
...3	F1102	308-0000-00169	EFBY0000501	SMD THIN FILM FUSE_1.250 (1 ¼ ) A / 32 V_KAB3202-132NA29010_0603_MATSUO_DCR < 95 mOHM	1	LG33 Common use
...3	D1401,D1402,D1403,D1405,D1407,D1409,D1410,D1408,D1406,D1404	309-0000-00023	EDLL0008901	LED Single Color_LTW-C193TS5_WHITE_2pin_0603_5mA/<146mcd_LITEON_N/A	10	LG33 Common use
...3	D602,D603,D1101	309-0000-00111	EDSY0018501	Diode Schottky_SDM20U40-7-F_N/A_2pin_SOD-523_250mA/40V_DIODES_N/A	3	LG33 Common use
...3	L109,L302	303-0121-82016	ELCH0018601	Chip Inductor_1.00 nH_± 0.3 nH_0402_100 Mhz_TDK_MLK Series	2	LG33 Common use
...3	L301	303-0121-82020	ELCH0014801	Chip Inductor_1.50 nH_± 0.3 nH_0402_100 Mhz_TDK_MLK Series	1	LG33 Common use
...3	L104	303-0121-82024	ELCH0012801	Chip Inductor_2.20 nH_± 0.3 nH_0402_100 Mhz_TDK_MLK Series	1	LG33 Common use
...3	L110	303-0121-82027	ELCH0013401	Chip Inductor_2.70 nH_± 0.3 nH_0402_100 Mhz_TDK_MLK1005S2N7ST_N/A	1	LG33 Common use
...3	L103	303-1000-00367	ELCH0018501	Chip Inductor_5.10 nH_± 0.3 nH_0402_100 Mhz_TDK_MLG1005S5N1ST_DCR<0.25 OHM	1	LG33 Common use
...3	L202	303-1000-00182	ELCH0018901	Chip Inductor_6.20 nH_± 0.3 nH_0402_100 Mhz_TDK_DCR<0.25OHM	1	LG33 Common use
...3	L102	303-0121-83043	ELCH0018401	Chip Inductor_8.20 nH_± 0.5 nH_0402_100 Mhz_TDK_MLK Series	1	LG33 Common use
...3	L203	303-0121-86049	ELCH0013601	Chip Inductor_12.0 nH_± 5%_0402_100 Mhz_TDK_MLK Series	1	LG33 Common use
...3	L101,L201	303-0121-86051	ELCH0018301	Chip Inductor_15.0 nH_± 5%_0402_100 Mhz_TDK_MLK Series	2	LG33 Common use
...3	L606,R1125,R1126	303-1000-00303	ELCH0019001	Chip Ferrite bead_1000 ohm_± 25%_0603_100 Mhz_TAIYOYUDEN_FBMH1608HM102-T_DCR<0.35 Ohm	3	LG33 Common use
...3	L1302,L1303	303-1000-00175	ELCH0018701	Chip Ferrite bead_2500 ohm_± 25%_0603_100 Mhz_TDK_DCR<0.8 OHM	2	LG33 Common use
...3	U802	310-0000-00082	EUSY0387401	P Channel-MOSFET+Schottky_FDFMA2P857_6pin_MicroFET_FAIRCHILD_N/A	1	LG33 Common use
...3	U1401	310-0000-00092	EQFN0008801	N Channel-MOSFET_AO5404EL_3pin_SC-89_ALPHA&OMEGA_N/A	1	LG33 Common use
...3	U401	311-0000-00291	EUSY0361101	I.C BASEBAND PROCESSOR_MT6226MA/BC-L_TFBGA_296BALL_NoMemory_MTK_FOR GSM/GPRS	1	LG33 Common use



...3	U601	311-0000-00021	EUSY0361901	I.C POWER MANAGEMENT UNIT(PMU)_MT6318A/DY-L_TFBGA_96 Balls_NoMemory_MTK_N/A	1	LG33 Common use
...3	U201	311-0000-00049	EQBA0005401	I.C TRANSCEIVER_MT6139BN/FR-L_QFN_40 Pins_NoMemory_MTK_N/A	1	LG33 Common use
...3	U101	311-0000-00051	SFAY0011201	I.C POWER AMP MODULE(RF)_SKY77318-12_MCM_20 Pins_NoMemory_SKYWORKS_N/A	1	LG33 Common use
...3	U301	311-0000-00503	EUSY0361701	I.C BLUETOOTH MODULE_MT6601T/BO-L_TFBGA_70BALLS_NoMemory_MTK_N/A	1	LG33 Common use
...3	U1302	311-0000-00762	EUSY0394901	I.C FM MODULE_Si4708-B-GMR_QFN_16 PINS_NoMemory_SILICON LABS_N/A	1	LG33 Common use
...3	U502	311-0000-00626	EUSY0408301	I.C STACKED MEMORY_K5L5563CAA-D770_FPGA_84 BALLS_256M+64M_SAMSUNG_NOR FLASH+UtiRAM	1	LG33 Common use
...3	U701	311-0000-00689	EUSY0376801	I.C AUDIO POWER AMPLIFIER_TPA6202A1ZQVR_BGA_8 Balls_NoMemory_TI_Vo=3.6V, 0.63 W, 8 Ohm	1	LG33 Common use
...3	U1005	311-0000-00800	EUSY0425101	I.C LDO_S-1711A1528-M6T1G_SOT23-6_6PIN_NoMemory_SII_150mA,V1=1.5V,V2=2.8V	1	New LDO for new camera
...3	U202,U302	311-0000-00500	EUSY0362101	I.C LDO_TK63128BCBG_FC-4_4 Ball_NoMemory_TOKO_Vo=2.8V/200 mA	2	LG33 Common use
...3	U402	311-0000-00270	EUSY0362301	I.C LDO_R1114Q281D-TR-FA_SC82AB_4PIN_NoMemory_RICOH_O/P=2.80V, 150mA	1	LG33 Common use
...3	U1101	311-0000-00041	EUSY0408401	I.C ANALOG SWITCH_STG3856QTR_QFN_12PIN_NoMemory_ST_Dual SP3T	1	LG33 Common use
...3	U1102	311-0000-00159	EUSY0408501	I.C ANALOG SWITCH_NC7SB3157P6X-NL_SC70_6 PIN_NoMemory_FAIRCHILD_SPDT	1	LG33 Common use
...3	MIC701	312-0000-00043	SUMY0012801	Omni-MIC_SPM0404LE5H-QB_55 'dB_ - 38dB $\pm$ 3.0dB_4.72*3.76*1.25mm_NA_SMD Type_KNOWLES_N/A	1	LG33 Common use
...3	J101,J103	314-0000-00229	ENRY0009101	CON. SPRING CONNECTOR_OG-321022_NA_1 pin_KITAGAWA_N/A	2	LG33 Common use
...3	J104	314-0000-00016	ENWY0006901	CON. ANTENNA CONNECTOR_C90-101-0004_NA_6 pin_SPEED TECH CORP(BEIJING)_For Antenna Switch	1	LG33 Common use
...3	J602	314-0000-00390	ENSY0023101	CON. SIM CARD CONNECTOR_SIM-06JK3G_2.540 mm_6 pin_OCTEKCONN_H=1.8mm	1	LG33 Common use
...3	J901	314-0000-00404	ENQY0015401	CON. FPC CONNECTOR_502250-2391_0.600 mm_23 pin_MOLEX_H=0.9mm	1	LG33 Common use
...3	J1001	314-0000-00415	ENSY0023901	CON. CAMERA MODULE SOCKET CONNECTOR_CMS020-B0-0201_0.650 mm_20 pin_PROCONN_W/H Cap, For 6*6 Camera module	1	LG33 Common use
...3	J1101	314-0000-00430	ELCH0018201	CON. MICRO USB CONNECTOR_GU073-5P-SD-E1500_0.650 mm_5 pin_LS MTRON_H=3mm	1	LG33 Common use
...3	J1201	314-0000-00256	ENWY0006601	CON. MICRO SD CONNECTOR_502774-0891_1.100 mm_8 pin_MOLEX_H=1.8mm	1	LG33 Common use
...3	SW1401,SW1402,SW1403	315-0000-00050	ESCY0007801	Switch Tact_NTC301-CC1G-C160T_12V/20 mA_2 Pin_TACT_MISAKI_Side Push	3	LG33 Common use
...3	FL201	326-0000-00020	SFSY0037801	Filter SAW_B39901-B9431-M410_897.50 MHz_EPCOS_EGSM TX-50/50 Ohm-SMD 5 pin EPCOS	1	LG33 Common use
...3	FL301	326-0000-00122	SEVY0010301	Filter Bandpass_LTB-1608-2G4H6-D1_2400~2500MHz_MAG.LAYERS_50/50 OHM. SMD 0603/4 pin	1	LG33 Common use
...3	U106	326-0000-00050	SFSY0039201	Filter SAW_B39182-B9307-G110_942.5/1842.5MHz_EPCOS_GSM/DCS RX-50/150 OHM-SMD10pin	1	LG33 Common use
...3	U107	329-0000-00024	ESCY0007701	Quad Switchplexer + SAW_ESHS-A085DC_HITACHI_Tx/Rx,MD-13 PIN	1	LG33 Common use
...3	RF Shielding Case	415-72210-0020	MFEA0033901 (Frame) MCBA0059001 (cover)	CASE_7221_SILVER_STAINLESS STEEL+COPPER-NICKEL-ZINC ALLOY_N/A_RF Shielding Case_PLIGHT(JIANGSU)_N/A	1	LG33 Common use

...3	Baseband Shielding Case	415-72210-0016	MFEA0033901 (Frame) MCBA0059001 (cover)	CASE_7221_SILVER_STAINLESS STEEL+COPPER-NICKEL-ZINC ALLOY_N/A_Baseband Shielding Case_PLIGHT(JIANGSU)_N/A	1	LG33 Common use
...3	J1103	415-72610-0025	MCBA0072901	CASE_7261_SILVER COPPER-NICKEL-ZINC ALLOY_N/A_IO connector case_PLIGHT(JIANGSU)_N/A	1	KF301Common use
.1	Camera	335-0000-00088	SVCY0027801	CAMERA MODULE CMOS_MC120C-0CA8E0002_SXGA_MCNEX_1.3M pixels	1	
.1	LCD	327-0000-00075	SVLM0036301	LCD TFT_Transmissive_128x160 Pixels_2.00 inch_IM200BBN3A_LG INNOTEK_262 COLOR_ZIF FPC TYPE	1	LG33 Common use
.1	SPEAKER SPONGE	415-72630-0004	MPBZ0319201	GASKET_7263_BLACK PORON_N/A_SPEAKER SPONGE_RIVER-TECH_N/A	1	
.1	METAL DOME	415-72630-0002	ADCA0118001	DOMES_7263_WHITE_STAINLESS STEEL_N/A_METAL DOME_MAGMA_N/A	1	
.1	Mic Mesh	415-72630-0016	MFBZ0024501	FILTER_7263_BLACK FELT MESH_N/A_Mic Mesh_RIVER-TECH_N/A	1	LG33 Common use
.1	MYLAR FOR BB SHIELDING CASE	415-72210-0023	MPBZ0250901	SHEET_7221_BLACK PET_N/A_MYLAR FOR BB SHIELDING CASE_E-LIN(KUNSHAN)_N/A	1	LG33 Common use
.1	LCM Conductive Fabric	415-72210-0033	MTAZ0339401	GASKET_7221_GRAY_CONDUCTIVE GASKET_N/A_LCM Conductive Fabric_RIVER-TECH_N/A	2	
.1	WATER DISSOLVE LABEL	478-221100-003	MLAB0005401	Mech. Label_2211_Global_WATER DISSOLVE LABEL_ROUND DOT TYPE 3*5mm_E-LIN(KUNSHAN)	1	
.1	HANDSET LABEL	478-722000-001	MLAA0062303	HANDSET LABEL_Packing Label_7220_Global_WHITE POLYESTER LABEL_30.5*14.5mm_E-LIN(KUNSHAN)	1	